DECEMBER • 1961

FIREMEN

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Conflagration in Los Angeles Hills — *See Editorial Page*

NATIONAL FIRE PROTECTION ASSOCIATION

66th year

Conflagration in Los Angeles Hills - - - - page 10

Fire Protection for U. S. Space Program - page 14

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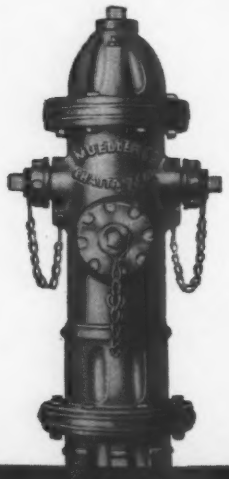

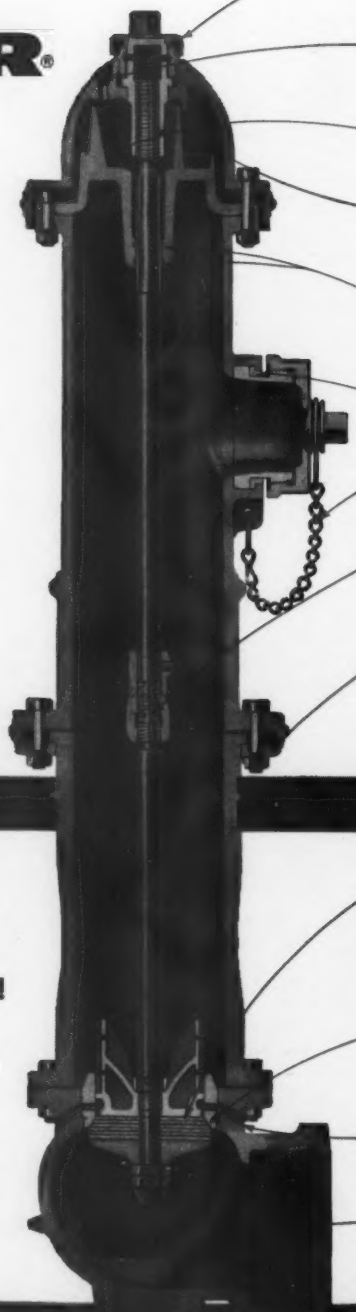

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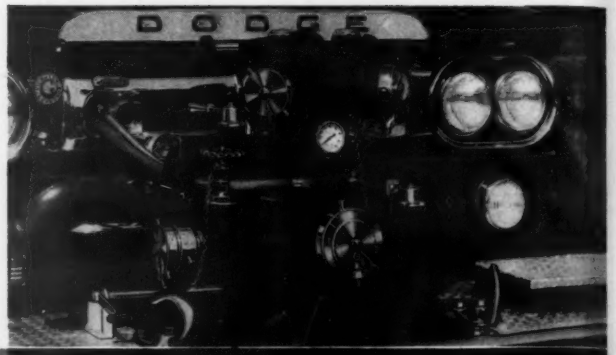

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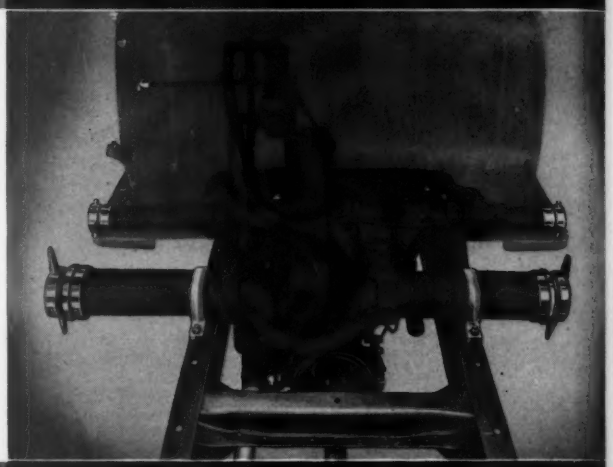

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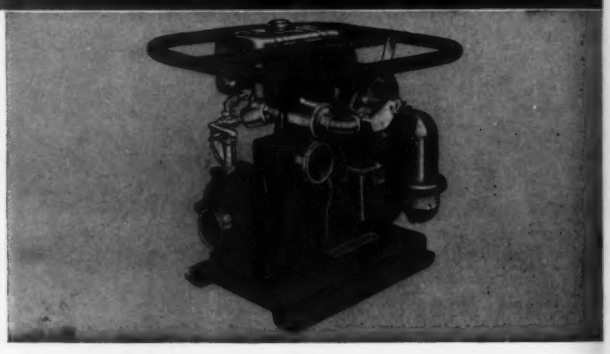

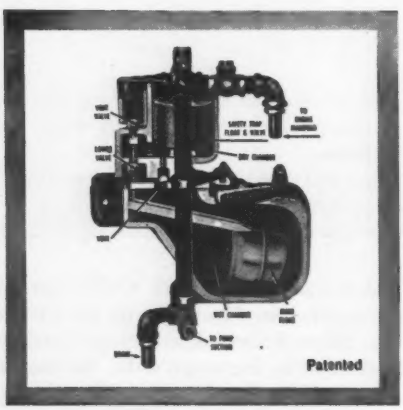

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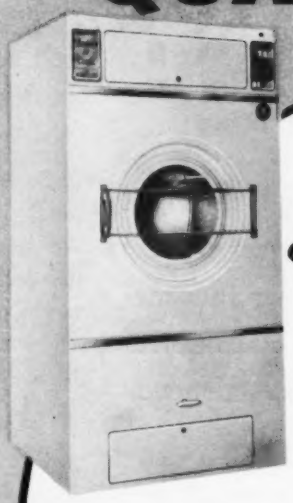

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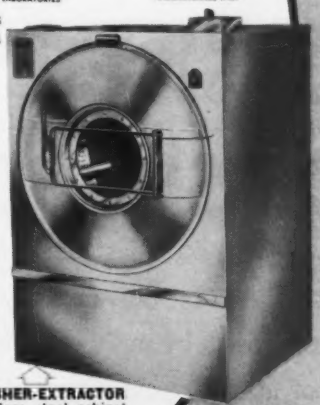

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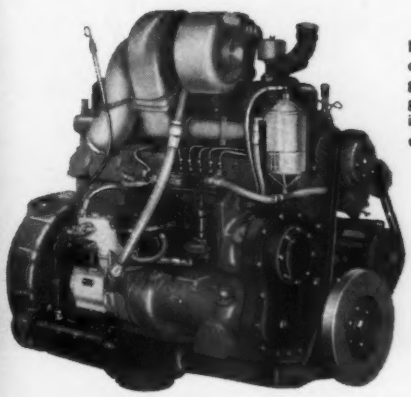
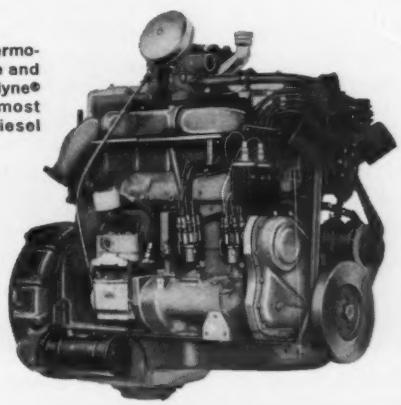


Note similarity of Mack-built Thermodyne® diesel and gas engines! Size and general appearance of Thermodyne® gasoline engine (right) are almost identical with Thermodyne® diesel engine (left).



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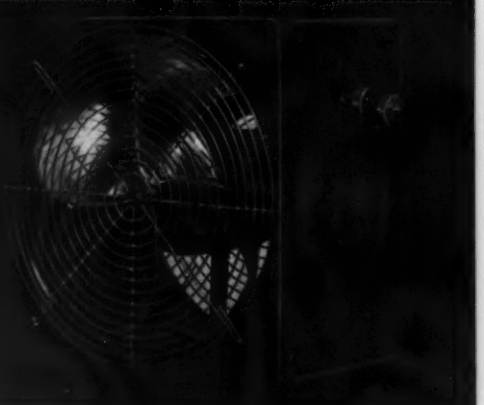

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FIREMEN

Volume 28 Number 12

A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

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One of the major conflagrations of the twentieth century occurred in the hilly section just north of Los Angeles, California. It began on the morning of November 6, then burned for five days before the fire fighting forces were able to gain complete control. In that time, about 2,000 persons had to be moved to safer areas, more than 400 homes in a valuable residential district were destroyed, and property damage amounted to an estimated 25 million dollars.

This month's cover is one of the few photographs which shows clearly the over-all problem faced by the Los Angeles Fire Department in those five difficult days. The combination of strong, dry winds, highly flammable brush, wood shingle roofs, rugged terrain, many combustible structures, and spot fires carried in advance of the main blaze, made a massive, frustrating problem of fire control.

Miraculously, no one was killed during this severe fire, which advanced on a broad front burning ground cover at the rate of about a mile per hour. Sparks, embers and burning wood shingles set many roofs and other parts of structures ablaze before the brush fire reached the buildings. Some of these fires were extinguished promptly before they did much damage, others burned buildings to complete destruction in a matter of minutes.

A report on this fire is now being prepared by the NFPA. At this moment, complete details are not available, but this issue carries some basic information and significant photos, beginning on page 10. (*Cover photo by Los Angeles Fire Department.*)

In the holiday season a year ago there were approximately 1,150 Christmas tree fires causing a loss of $877,400. This is an increase of 11.76 per cent in number of fires and a decrease of 10.23 per cent in dollar loss.

The worst experience was found in small towns of 2,500 to 5,000 population where the trees burned at a 17.6 fire per million person rate. The best experience was in cities above 500,000 population where the trees burned at a rate of 1.6 fires per million. From the dollar standpoint the big city fires were worst with an average loss of $2,600 per fire while rural areas lost only $400 per fire.

The number of Christmas tree fires of past years are as follows:

1950	1,200	1955	900
1951	1,200	1956	800
1952	1,000	1957	700
1953	1,150	1958	650
1954	750	1959	1,020

First response to the new motion picture film *Fighting Tank Fires* has been excellent. So far, municipal fire departments and industry are the leaders in purchasing the film for use in training, followed by State and Provincial training officers and fire marshals.

Naturally, there have been a number of requests for "preview prints" from individuals and organizations, who wish to study the film prior to purchase. We regret that only a limited amount of prints are available for preview, due to the large number of purchase orders. Those who have ordered preview prints may have to wait for several months or more before their request is fulfilled. A copy of the film is available on loan from the NFPA Film Library, c/o Western Actuarial Bureau, 222 West Adams Street, Chicago 6, Illinois, but this also is in great demand.

Fighting Tank Fires promises to be one of the most important and impressive films yet developed for the training of fire fighters. A story of the development of the film appeared in the September issue of this magazine. A brief description of its contents and its availability will be found on the back cover of this issue.

WARREN Y. KIMBALL, Managing Editor; PAUL R. LYONS, Editor; HENRY S. GERE, Advertising Manager; ROWENA D. DORES, Editorial Assistant; SHIRLEY TOBEY, Fire Service Department; VIRGINIA STILES, Advertising Department.

View from north of Bel-Air conflagration as winds at upper levels carried smoke and flaming brands toward built-up areas to the west side of the main fire front. Spot fires also developed in advance of the fire. (*Los Angeles Fire Department photo*)

CONFLAGRATION IN LOS ANGELES HILLS

ON THE morning of November 6, a fire started on the north side of the Santa Monica Mountain Range in the middle of Los Angeles, California. Aided by strong winds and low humidity this fire swept over the crest of the range and down southern canyons. It enveloped more than 450 expensive homes in the Bel-Air and Brentwood residential sections of the city, ultimately causing financial loss estimated in the vicinity of 25 million dollars.

Based on an initial report of the Los Angeles conflagration now being prepared by Rexford Wilson, NFPA Fire Record Editor, who visited the area during and after the fire. A more detailed report on this significant fire is being prepared for a future NFPA publication.

Scene shown on this month's cover illustrates the initial southern fire spread and the problems created by brush-covered, hilly terrain and home development. (*Los Angeles Times News Bureau*)

This conflagration created a frustrating problem of classic proportions for the Los Angeles City Fire Department, commanded by Chief Engineer William L. Miller, which threw its full strength into fire combat. It was the worst single conflagration to occur in North America since a fire in brush spread to wood shingle roofs in Berkeley, California, September 17, 1923, leading to the destruction of 640 buildings.

At the height of the Bel-Air conflagration, a fire of suspicious origin was discovered more than 6 miles to the west, spreading south from the mountain ridge into Topanga Canyon. The Los Angeles County Fire Department, commanded by Chief Keith E. Klinger, took over responsibility for this fire. Although this brush fire involved nine buildings in its early stages, and eventually covered a greater area, it was not, technically, a "conflagration," i.e., a fire which extends over a considerable area and involves many buildings.

The arrow points to the remains of 425 North Barrington Avenue. This helicopter view of a part of the Brentwood area shows the effect of the shower of brands which fell on the location. All nine destroyed homes in this cluster had wood shake or wood shingle roofing and burned from the roof down.

Meanwhile, a small fire of suspicious origin was discovered spreading from Benedict Canyon Drive, one-half mile east of the Bel-Air conflagration, but this was extinguished by a quick borate drop from an aircraft and mop-up work by two engine companies on the ground.

Prelude to the Fire

The possibility of severe fire in the area had been anticipated by the fire departments. (See NFPA *Quarterly* article, October, 1959 issue — "Wood Shingles." — Ed.) Southern California was experiencing a long, dry spell which fire officials stated was one of the worst they could remember. Only 19 inches of rain had fallen since July 1, 1958. Vegetation and buildings were tinder-dry and the dreaded high velocity, dry, Santa Ana winds from the northeast raised the threat of a potential holocaust.

The City and County Fire Departments are well acquainted with these conditions and each has developed complex, but efficient, mobilization plans to meet major fire emergencies. All fire fighters receive training in the methods of controlling large-scale brush fires, with special emphasis given to the protection of buildings. (One technique is to step inside a building until the fire races by, then to move outside quickly and try to knock down any fire that has started on the building.)

Despite the fact that both departments have sound operating plans, they face some fundamental obstacles. First, there are the very steep hills, covered with oily brush which, when preheated, give off vapors which ignite almost explosively. The hills, road widths and road curves limit maneuverability of responding apparatus. In the Fire Area, only one road suitable for fire fighting runs up to the top of the ridge, while minor roads often are "dead ends," usually flanked by canyon walls.

When only a brush fire is developing and no homes are endangered, the general system of attack is to follow the fire front, knocking down the flanks with ground apparatus and perhaps aerial drops. Meanwhile, bulldozing and backfiring are started at strategic points to pinch in the sides and eventually cut the fire off. Both fire departments rely on large water tanks on apparatus and 1- or 1½-inch hose lines. In the hilly areas, water must be used sparingly and these small mobile lines have proved effective.

When the fire threatens to involve built-up areas and to endanger human lives, the job is much more difficult. This was one of the critical factors in the Bel-Air-Brentwood fire that started on November 6.

Fire Ignition and Spread

At approximately 8:10 A.M., a fire of accidental origin started at the end of a canyon road on the north side of the Santa Monica range. Because of the Santa Ana conditions which had prevailed since the preceding Saturday, the City Fire Department had already begun to move companies to strategic positions to supplement the mountain area protection. However, in the extreme wind and weather conditions, the fire got a fast start. The northerly surface wind was gusty and at times exceeded 35 mph velocity. The humidity had been below ten per cent since Sunday afternoon.

Companies responding to the first telephone alarm managed to control the flanks of the fire, protecting the buildings which were first threatened. But the fire front spread up the canyon walls and leaped across the ridge road, Mulholland Drive. In its path were the homes of some 4,000 people. An immediate problem was to warn these people and evacuate the threatened area. At this time, 8:30 A.M., the major emergency plan was put into effect.

Dwellings with wood shingle and shake roofs made the difference between a dangerous sweeping brush fire and a conflagration which leaped beyond the capabilities of the huge concentration of fire apparatus and manpower amassing to meet it. Burning embers from the brush easily set fires downwind (south) in other brush and on combustible roofs. When the roofing became involved, large, flaming brands were

Brush fire advances up slope toward hill crest. Swimming pool, as shown in right foreground, was common accessory for many dwellings, but usually pools were behind buildings or otherwise blocked so as to be inaccessible to fire apparatus. (*Wide World photo*)

At least 63 homes were destroyed on Linda Flora Drive. This view of more than one quarter of them shows the terrain and grade problems. (*Wide World photo*)

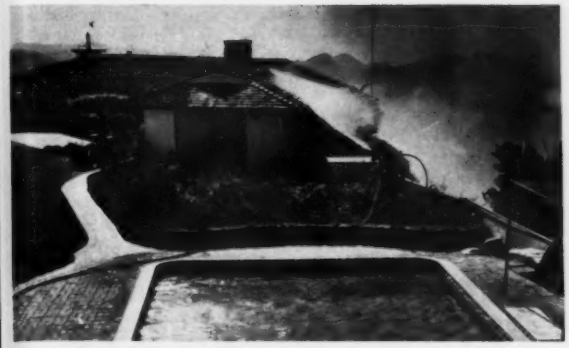
Many drops of borate solution were made by aircraft. Best effect was on easterly flank where planes held fire spread. One plane knocked down a fire of suspicious origin shortly after it started, then ground companies mopped it up quickly. (*Wide World photo*)

carried aloft by thermal currents and along the path of the upper winds.

At about 2,000 to 3,000 feet elevation, strong cross winds blowing to the southwest carried these brands to places more than an airline mile to the side of the main fire. Actually, this route, up, over and down, was a true distance of more than two miles. Examination of the lawns and pools west of Sepulveda Boulevard revealed the charred remains of some of these brands.

In some places, brands caused single buildings to be burned to the ground, while around them buildings and vegetation were hardly touched by fire. Many minor roof fires, extinguished by fire fighters or homeowners, were caused by small embers from the brush, or from flying brands from other burning wood shingle or shake roofs.

As the fire was in progress, news media showed a number of pictures of individuals using garden hose streams to protect their homes. This reflected another major problem. The Bel-Air section has good water supply for normal demand, with hydrants well-spaced for the protection of a residential area. Nevertheless, when this fire was building in intensity, a "hysteria demand" was placed on the water system. Homeowners throughout the area and miles away turned on their outdoor watering systems and began wetting down their wooden roofs. Some fire fighters entering homes to close windows and pull down curtains found bathtubs and sinks overflowing. It was also reported that two elevated tanks on one ridge, totaling 1,500,000 gallons capacity, were emptied in ten minutes, as people used every possible means to get water to protect their homes. The pumping stations in this area of Los Angeles were working at full capacity delivering 28,000 gpm. One station, still under construction, was put to work before it had been officially completed.



Men and apparatus had to be stationed with hose streams to protect wooden roofs. When wooden roofs became well involved, fire fighters had to move quickly to protect exposures, but meanwhile flying brands from the roofs were passing overhead well beyond the reach of hose streams. However, if a dwelling roof was fire retardant and a small fire started in the eaves or siding, hose streams usually could knock this out then be moved to another position. (*Wide World photos*)

Fire Department Tactics

When the fire left the "brush stage" and started jumping to roofs, the fire department could only resort to throwing every available man and rig into the area to confine the fire to certain dwellings. Control was gained by massing fire apparatus on the southern and southwestern flanks, minimizing the structural fires in that area, and by relying on borate bombing by aircraft to knock down the blaze spreading on the less smoky eastern flank. Biggest break came when the Santa Ana winds lessened late Monday afternoon, and the movement of the fire front became slow enough so that control became possible.

At 9:08 A.M. Monday, a partial recall of off-duty men was made, then a full recall of all personnel followed early Tuesday morning. (Last such full recall was during the LaTuna Canyon fire in 1955.) On Monday, downtown companies, including the Harbor Patrol, were brought into the critical regions. More than 3,100 men and about 240 vehicles were brought into action, while 12 airplanes and 5 helicopters operated overhead. Apparatus from 24 other fire departments covered stations in Los Angeles.

Perhaps the most serious command problem of this fire resulted when radio communications broke down. Intense smoke and heated gases are known to be electrical conductors. It is not certain at this date whether the intense thermal column acted as a sponge for radio messages, or whether the breakdown came as a result of complete jamming of the two available radio frequencies as simultaneous messages were transmitted. While probably both were factors, this breakdown left chief officers with little or no means of getting additional help in critical areas. (The Department already is investigating additional frequencies to avoid such breakdown in the future, such as a special command frequency for chief officers only, plus another for routine communication and supply details. — Ed.)

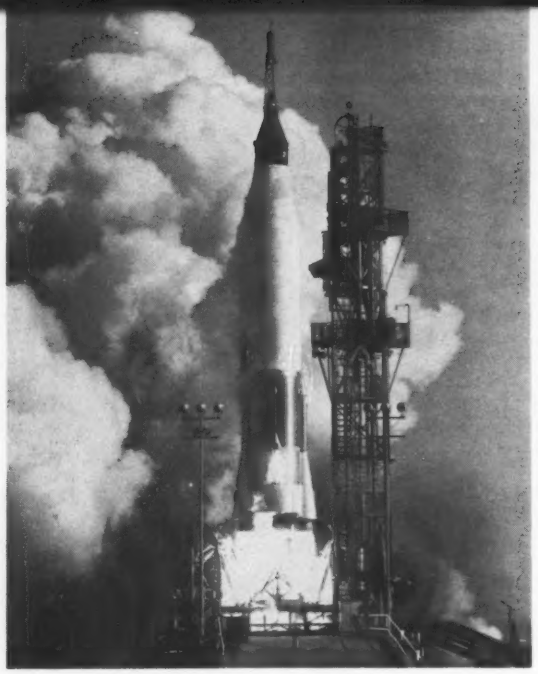
Wrap-Up

In the Bel-Air-Brentwood fire, the brush burn extended over 5,000 acres, and more than 450 homes and 180 other buildings were destroyed. Of these homes, more than 300 (the count is not complete — Ed.) had wood roofs. Many fire fighters and homeowners managed to knock out spot roof fires by sweeping off embers, tearing off shingles or knocking down flames with a garden hose before burning could gain headway. The biggest problem with this wooden roofing seemed to be a lack of time for fire fighters to react effectively. On one large house, even though four people were on the roof, they could not get around fast enough to prevent its ignition from the shower of sparks. Once a roof became ignited, it was only a matter of minutes before the building was completely involved. Meanwhile, sparks and embers were pulled aloft on thermal currents to threaten more brush and other buildings.

The denuded hills now pose a flood threat to the homes remaining. Persons who saved their homes from fire are faced with the problem of having to scramble up rear slopes and plant grass seed with the hope that the next rain will be a gentle one.

Ignition and spread of fire on wood shingle or shake roofs usually looked like this. Then burning brands would be carried up in thermal draft, then move with wind in advance of fire. (*Wide World photo*)

Once a dwelling was well ignited, destruction was usually complete as roof, attic and then interior burned vigorously. (*Wide World photo*)



MA (Mercury Atlas) II roars aloft from Cape Canaveral. The next Atlas launch, MA-III, placed astronaut Alan Shepard into orbit.

Fire Protection for U. S. Space Program

by L. B. Taylor, Jr.

COMPLETE launch site fire protection is one of the most important phases of the over-all master safety plan for the astronauts at Cape Canaveral, Florida.

Long months of planning security for the men-in-the-capsules have culminated in the formation of a unique safety convoy of fire trucks, ships, planes, helicopters, motor launches, amphibious vehicles and an armored tank.

As this issue of FIREMEN goes to press, it is anticipated that an American astronaut may be put in orbit from Cape Canaveral before the end of this month. The November 1959 issue of FIREMEN contained an article by L. B. Taylor, Jr., describing the fire department commanded by Chief Norris C. Gray which protects the renowned missile launching site. This month, Mr. Taylor discusses other fire protection measures that assure maximum safety for men and launching equipment at Cape Canaveral.

Recovery responsibilities at the Cape and in adjacent waters — in case of a launch site abort of the rocket booster — are borne by a 50-man force officially known as Task Group 140.1. Headed by Lt. Col. Harry Cannon, Chief of the Air Force Missile Test Center's Missile Operations Division, this group is part of the over-all Mercury (code name for the project) Task Force, commanded by Rear Admiral F. V. H. Hilles. Crews from Pan American's Fire Department at Cape Canaveral (see Nov. 1959 FIREMEN) form a vital core of this recovery team.

Fire support is one of the responsibilities of Pan American's Guided Missiles Range Division under its contract to the Air Force Missile Test Center for the planning, engineering, operation and maintenance of the Atlantic Missile Range. Cape Fire Chief Norris C. Gray and Assistant Chief Lee Hipp began planning

Asbestos fiberglass "entry" suits are worn by firemen manning an M-113 armored vehicle during launches.

Wearing asbestos fiberglass "entry" suits, Chief Norris Gray and his crews squelch simulated missile fire.

fire fighting support for the astronaut program in September, 1960, long before the first man or even the first chimp climbed into one of the nine-foot-long, bell-shaped space capsules.

Firemen drive an M-113 armored personnel carrier, man three LARC (light amphibious re-supply cargo) vehicles, and back these up with regular 0-11B fire trucks during all MR (Mercury Redstone) and MA (Mercury Atlas) launches. Redstone is the reliable 69-foot-tall missile that boosted astronauts Alan Shepard and "Gus" Grissom 300 miles down the missile range, thus preparing them for the more powerful Atlas launches which soon will hurl man into orbit around the earth.

The astronaut capsule is mounted atop both Atlas and Redstone boosters, and is capped by an 18-foot "tower" which houses escape rockets. If something goes wrong with the booster during launches, the retro-rockets will kick the capsule free of the danger area.

The rugged ten-ton M-113 recovery vehicle was developed originally by the Food Machinery and Chemical Corporation to transport troops safely in combat. An armored, full-track unit, it was borrowed from Fort Benning, Georgia, and specially adapted for its space age mission. Built to withstand extreme heat or even an explosion, it is positioned near the launching pad during each "live" Mercury countdown. In the event of an abort directly on or near the launch site's concrete apron, M-113 will move in immediately and either pull the capsule free with 6,000-pound taped cables, or push it free with tailor-made cow catcher.

The need for such a vehicle became apparent on November 21, 1960, when the first Mercury Redstone, topped with a dummy capsule, misfired on the pad, and showered sizzling fireworks for several minutes. Recovery crews, standing by for practice purposes, were not allowed into the area, because the rocket was still armed with a destruct package.

Cape firemen, assigned as drivers of the M-113, wear special asbestos, fiberglass "entry" suits, manufactured by Fyrepel Products, Incorporated. This outfit has a thick aluminum outside coating and is designed to withstand temperatures up to 1,600 degrees. Scott Air-Paks are strapped on the fireman, inside the suit. The whole outfit weighs 56 pounds. A second fireman, who assists medics if necessary, also wears one of these suits. All other personnel in the M-113, including the vehicle commander and a special doctor, wear aluminized, heat reflective fire outfits.

Current recovery plans call for a 750 gpm O-11B fire truck, carrying 1,000 gallons of water and 100 gallons of foam, to follow the M-113 up to the edge of fire, and, from there, shoot streams of water over the armored tank onto the flames. The water will not only wet down any fire, but also dilute peroxide on the missile, thereby providing a shield between the astronaut and the peroxide, which is used for guidance in the capsule's escape rocket.

Another O-11B truck stands by inside the roadblock (approximately 2,000 feet from the launch pad) for all manned shots, and acts as a second backup truck, if necessary, for the M-113. Each vehicle is specially outfitted with an armor-plated blast shield screen to protect the front of the truck. A 1,000-gallon tanker is also stationed at the main roadblock.

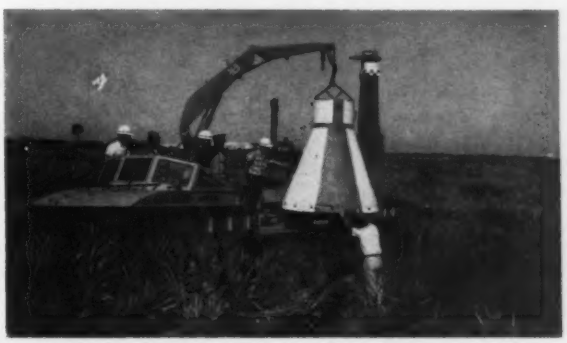
While the M-113 stands by near the missile during manned launches, the three LARC's are positioned in "high probability impact areas" on the 17,000 acre Cape. Each LARC is equipped with a 420-gallon water tank and a 500 gpm pump operated by jet turbine engines (45 hp and 40,000 rpms). The one and a half inch hose is handled by a Cape fireman. The LARC's purpose on this unique recovery team is to speed to any spot in case the capsule ejects itself and lands on or near the Cape—in areas where the M-113 or O-11B's cannot maneuver. (Much of Canaveral is still undeveloped, and there is considerable marshland.) The water tank has been mounted to cool the capsule and drench brush fires if it lands in a remote area. Also, a specially equipped 530-A truck, with "swamp buggy" tires, is positioned near the LARC's for added support.

On the missile pad itself, Chief Gray has had four 500 gpm nozzles replaced by a quartet of 2,500 gpm nozzles, as extra launch site fire protection.

Firemen trained for months to prepare for their role in the recovery program, and each man has been cross-trained to handle a second job in case of emergency. Chief Gray has scheduled countless dress rehearsals between "live" launches to insure perfection if and when their services are needed. Assistant Chief Hipp's crew on the M-113 has been clocked from starting point to launch site in 40 seconds flat. LARC's can plow through thick brush or soggy swamps to any point on the Cape — within 10 minutes. Every member of Task Group 140.1 has reached a fine edge of preparedness for the upcoming orbital launches.

The Cape firemen hope their services will never be needed, but just in case, they are still working hard to shave even more seconds off their best trial runs — seconds that could save an astronaut's life.

An adapted M-113 armored personnel carrier, left, is positioned near the launching pad for all man-in-space shoots, ready to rescue the astronaut in case of an abort. An O-11B fire truck backs up the M-113.



Mobile LARC's, mounted with a 420-gallon water tank and a jet turbine-operated 500 gpm pump, are ready to speed to the scene if the astronaut lands anywhere on the Cape. The pump will be manned by a Cape fireman.

BORATE DROPS SLOW LUMBER YARD FIRE

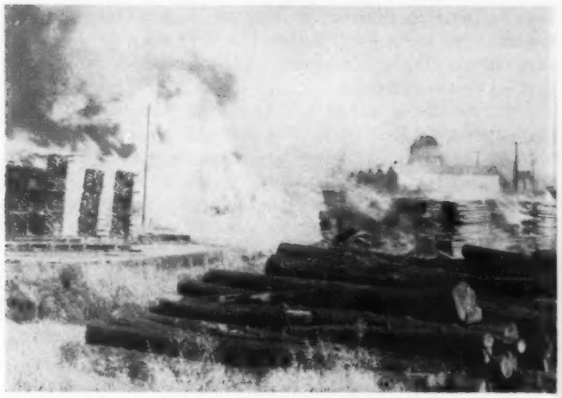


Photo of fire spread before planes arrived with borate. Incinerator where fire started is at right. Lumber piles at left are near bulk storage plants.

ON SEPTEMBER 6, the Roseville, California, Fire Department, headed by Chief Pete Badovinac, responded to an alarm for a fire involving a lumberyard and severely threatening gasoline storage tanks of a nearby oil plant. The fire had started near an incinerator on lumberyard property, and as first companies pulled in, Chief Badovinac noticed that flames already were involving the tops of three piles of stacked lumber. Strong winds were spreading the flames toward the oil company property, and, as the fire progressed, several fifty-gallon drums of gasoline ruptured violently.

Chief Badovinac's first tactics were to set up two pumpers in relay from the hydrant east of the fire, then to move a "quad" to a hydrant north of the fire to supply heavy stream equipment and 2½-inch lines. By the time this apparatus was in position, 15 piles of lumber were on fire and mutual aid was requested from fire departments in the surrounding towns of Lincoln, Rocklin, Auburn, Dry Creek, South Placer, and Citrus Heights. At the same time, a radio message was sent to the California Division of Forestry Office in Placerville, approximately 35 miles away. This call requested aircraft support for the control of the fire.

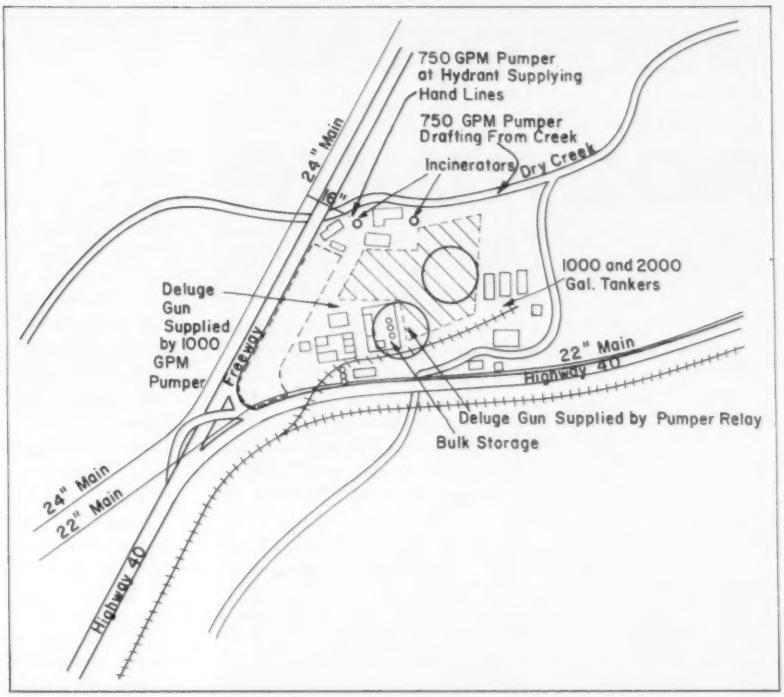
Eventually, eight pumpers, four tankers and two special grass fire trucks responded to the fire scene. Two deluge guns, three 2½-inch hand lines, seven 1½-inch hand lines and two booster lines were in operation. It took about 45 minutes from the time that the call was put in for air support before the first plane arrived.

According to the report from Chief Badovinac, hand lines and heavy stream equipment were giving some protection to exposures. Nevertheless, before the first air drop was made, flames were burning close to the bulk storage tanks which were being cooled by a 1½-inch line.

The pilots of the two planes were instructed to make their drops at two points where the fire was burning most severely. Each plane made its first drop in the vicinity of the storage tanks, knocking down the fire considerably and allowing the ground crews to move in effectively with hand lines. The planes returned for their second drop on the log and lumber piles which were burning heavily over 2½ acres. Here the ground crews had surrounded the fire with deluge guns and nozzles from 2½-inch hand lines. The second drop by the planes also made this task easier. There were no hydrants in the immediate vicinity of this sector, so two pumpers were spotted here supplied by three large tankers which relayed from a hydrant approximately ½ mile distant.

Chief Badovinac is certain that the borate drops on this fire made a distinct difference in the establishment of control. His report stated, "Had the tanks holding flammable liquids burst, several lives might have been

(Right) View of oil company property showing vertical storage tanks with fire burning in the background.



Sketch of lumber yard fire problem in Roseville. Circles indicate areas where the planes each made two borate drops. Circle in lower center shows how closely fire had moved to bulk plant property. After borate drops, deluge guns and hand lines were able to control and extinguish remaining fire. Crosshatched area in this sketch represents general extent of fire in stacked lumber.

lost and the fire spread would have been tremendous, involving all three bulk storage plants. Fuel from these tanks would have drained into the creek which runs into the heart of the city. Fire would have involved several homes, business establishments and one school, since a heavy south wind prevailed at this time.

"The first drop of borate from the Division of Forestry planes . . . aided us in keeping this loss to a minimum. Without the aid of these planes, loss of the exposures threatened by the fire would have been almost a certainty."

The chief pointed out, of course, that it would be useless to depend upon borate drops to extinguish fire in dry stacked lumber, since fire of this nature involves not only the tops of the piles, but comes out every layer to the bottom. However, he mentioned that borate drops in succession, supported by action of the ground crews, should prove successful, after his experience with this particular fire.

Plane makes another drop as pumper crews stand by. It is dangerous to be under a plane when it drops solution.

First borate drops were made to protect storage plants. Note how flames have been knocked down in this section, which is approximately the same view as shown at top of opposite page. (*Photo by Sacramento "Bee."*)

REGIONAL ROUND-UP

A spot check of progress and plans of NFPA member fire departments and other fire service organizations in various regions.

FROM *Montgomery*, Fire Chief C. C. Strane reports that a new Gamewell fire alarm system has been installed at the headquarters station. Also scheduled for purchase is new elevating platform apparatus for which the department anticipates spending $50,000 this fiscal year.

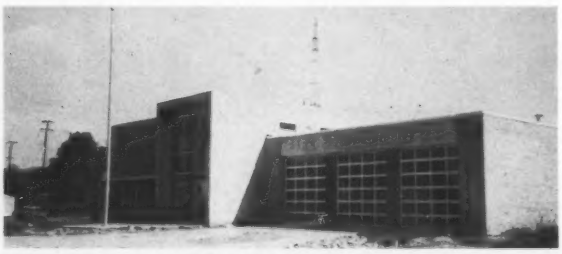
The city of *Mobile* is experiencing problems of rapid expansion, reports Fire Chief C. D. Sirmon. Outlying areas recently voted to come under city jurisdiction, increasing city population to 203,000 and city area to 175 square miles. Seven additional fire stations were needed for protection. Five have been completed and two lots have been purchased for the other stations. Each station is of one-story brick construction, air-conditioned, with electric doors and space for housing two pieces of apparatus. Latest, built in August, houses a new 1,000 gpm pumper. A telephone alarm system is being installed in the city.

Birmingham also has been growing, according to Chief John L. Swindle. Back in May, 1960, voters approved a bond issue of $800,000 for new fire stations and $95,000 for new equipment. As a result, the fire department has modernized two older stations, built five new stations, air-conditioned all others. In addition, four new 1,000 gpm pumpers were purchased, put in service last May. Station No. 20, one of the new ones, is a combination station, fire academy and training center. It has a five-story drill tower, classrooms, quarters for the drill master and fire instructor, a library, and quarters for the district chief. The training tower includes sprinkler and standpipe systems, outside fire escape, and a room for training in actual fires.

Useful training aids were acquired from the local power company, which provided electrical display boards on modern fuse panels and wiring, also samples of electrical installations dating back 40 years. The gas company is setting up a 250 gallon LP-gas tank with controls. Birmingham's excellent facilities have been offered for the 1962 Alabama Fire College.

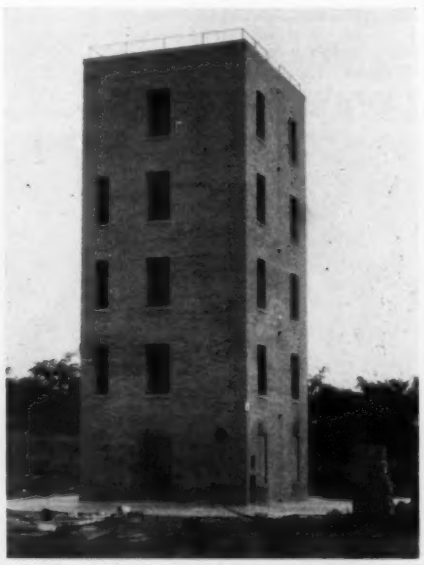
In *Montevallo*, the volunteer fire department, headed by Chief Bill Pendleton, has recently acquired a new Howe 750 gpm pumper, a trailer with generator and lighting units, resuscitation equipment, breathing apparatus and a utility aerial ladder. Members meet twice monthly for training sessions and make practice runs to various parts of the 2,800 population town. Appreciation of the town for the fire department's work is expressed by an annual, 3-day, all-expense paid fishing trip to the Gulf coast.

State Forester J. M. Stauffer reports that "the Alabama Division of Forestry is engaged in converting its fire danger rating system from the 5-point to the 100-point danger indicator system." He says:



Birmingham, Alabama's new Fire Station No. 20 is a combination station, fire academy and training center.

Fire Companies 5 and 13, Birmingham, Alabama, are housed in this building, typical of the department's five new stations.



Five-story drill tower at Birmingham, Alabama, Fire Station No. 20, features sprinkler and standpipe systems, outside fire escape and a room for training in actual fires.

The 100-point system represents a definite improvement over the 5-point in that it includes a drought factor and provides a basis for evaluating the effectiveness of the prevention effort by removing the effects of weather, for estimating the work load and planning action on going fires. Measurements of variable weather factors which influence fire behavior, consisting of fuel moisture and wind velocity made two or three times a day and of rainfall made once a day at the danger rating stations, provide the data necessary to follow the development of critical conditions and to obtain a dependable average daily danger rating. Twenty-two revised danger rating stations are presently operated by this Division. Plans provide for installing eight more stations. Each fire danger rating station consists of an anemometer, a set of fuel moisture sticks or indicators, a fuel moisture scale and a rain gage. The variable weather factors are measured by these instruments and correlated by means of a meter to obtain the fire danger rating.

Forest Service training in the fall included revised fire damage appraisal procedure, organizing for handling big fires, and instructor training.

From *St. Petersburg*, Chief S. O. Griffith reports that his fire department changed working schedules last spring, from a 72-hour week to a 56-hour week, 24 hours on, 48 hours off. The department hired 70 new fire fighters after the change-over. Also recent was the opening of two new fire stations and the delivery of three new 1,000 gpm pumpers and an 85-foot elevating platform apparatus built by the Pitman Manufacturing Company. The department has also put in service two new 500-gallon tank trucks which fire department mechanics built on commercial chassis and two new rescue trucks with boats. Scheduled for the future is a new headquarters station in the downtown area.

A report from State Forester C. H. Coulter mentions that the Florida Forest Service currently has a C-45 two engine airplane capable of carrying 300 gallons of water or fire retardant in two 150-gallon tanks. The tank cargo can be dropped individually or simultaneously. Also being readied for use is a government surplus PBY flying boat capable of carrying 1,200 gallons of water or fire retardant in 2 or 4 separate tanks. The Forest Service plans to use diammonium phosphate dissolved in water as retardant, adding a coloring die so that the "drop" can be observed on vegetation. This is a great help if more than one pass is necessary on a fire.

Expansion of population and industry into the rural areas has necessitated greater cooperation between municipal and volunteer fire departments and Forest Service units. Some four-wheel drive tanker trucks have been made available to the municipal departments by the Forest Service to be used as needed in this rural area. For forest fire control, standard equipment includes medium and heavy weight crawler tractors with regular fire fighting plows. The plows and four-wheel drive tank trucks have proved to be efficient for building fire lines and in speeding suppression.

The Florida Fire Service is using a PBY flying boat which can carry 1,200 gallons of water or fire retardant. Here, PBY makes drop to check volume of water and coverage.

Crawler tractor and heavy-duty forest fire suppression plow being loaded at Florida Forest Service headquarters.

In November 1960, the *Jacksonville* Fire Department, commanded by Chief F. C. Kelly, began a 56-hour work schedule. This meant the addition of 93 new men for the third shift. The department also added two new pumpers of 1,000 and 1,500 gpm capacity and has ordered a new 100-foot aerial ladder truck scheduled for delivery this year.

A 10 kilowatt 60 cycle, 125 volt generator, used by the Jacksonville, Florida, Fire Department, has an 85 horsepower gasoline engine. Two 250-foot reels of cable, each with 3-way gangs, were added in the department shop. A 3-light cluster (500 watts each) is permanently mounted on the unit. Four other 500 watt lamps are removable.

Property is being purchased for a new double station in the northwest section of Jacksonville. In addition, the department acquired a 10 kilowatt generator and mounted it on a trailer for use at all multiple-alarm fires and special calls.

This new Mack 100-foot aerial ladder was recently put in service by the Gulfport, Mississippi, Fire Department.

The *Gulfport* Fire Department has put a new Mack 100-foot aerial ladder into service, reports Chief Harold H. Lacy. It is equipped with 232 feet of ground ladders, life net, ladder pipe, and nozzle tips, and has a 276 horsepower engine.

Pumper operators are being trained by Captain Martin L. Hudson, Departmental Instructor. Captain Hudson has devised useful tables of nozzle and engine pressures and hose layouts including layouts for the ladder pipe and relays. These tables are embedded in laminated plastic and mounted by the pump panel to simplify hydraulic calculations on the fire ground.

Booster tanks in all Gulfport pumpers are filled with a minimum of 500 gallons of water to supply preconnected 1½-inch lines. A pumper makes initial attack with 1½-inch lines and, as more water becomes necessary, another pumper relays through two 2½-inch lines to the pumper at the fire. Additional 2½-inch working lines can be connected as needed.

"The best record keeping system in the state" is a tribute that was paid to the *Greenville* Fire Department, commanded by Chief A. Z. Lokey. The sample set of forms which the chief sent with his report of activities certainly indicates that the department has concentrated on establishing an effective record system covering many aspects of personnel administration, fire prevention, etc.

This fall the department added five new men to build its force to three chief officers, a full-time inspector and 34 fire fighters. By October 1963, the department plans to acquire a new 85-foot aerial ladder truck, six more men and a central station with a drill tower. Standard operating procedures include loading two pumpers with two 2½-inch lines of 1,000 feet each. On large fires four lines are operated from each pumper, two in the rear and two in the front.

According to the chief:

> This keeps a second pumper from running over the first pumper's hose. The men from the other two pumpers man these two extra lines. This lets us work the other two engineers on fire lines and provides two fully loaded pumpers for a second fire. It gives us two lines of equal length from one pumper when we use deluge guns.

> Our trucks and cars on a fire run keep a distance of at least 100 feet apart. We also have a 35 mile speed limit on trucks and 40 mph on cars. We do not allow a car or truck to pass another on fire runs. We do not promote on seniority or favoritism; our men promote themselves through examinations. Questions have a "yes" or "no" answer. This type of promotion has improved the department.

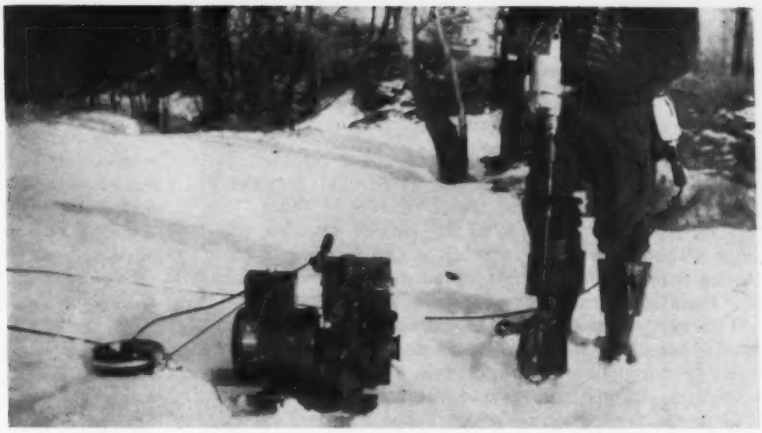
Firemen's training in Mississippi last year got a boost from two bills passed by the legislature and signed by the governor, reports J. W. Browne, State Supervisor, Trade and Industrial Education. The first was an act to authorize the Vocational Division of the State Department of Education to establish and supervise a school for the training and education of municipal county and industrial firemen. The second bill appropriated a sum of $12,000 for this type of education. Last June, Mississippi held the first Fire Fighters School, with 103 attending. A number of training aids have already been purchased, including a 16mm motion picture camera so that training films can be made. Initially, training will be given to instructors so they can return home to train their local fire departments.

State Forester C. B. Marlin reports that the fiscal year ending last June showed the best year on record for the fire control program. The lowest number of fires per million acres occurred, and protected acreage burned was also the smallest on record. The Mississippi Forestry Commission has 74 counties under fire protection, covering 17½ million acres of timbered and uncultivated land. Only eight counties remain unprotected. Forests occupy 57 per cent of Mississippi land and 25 per cent of the state's economy comes from growing and manufacturing forest products. The Commission operates 174 fire lookout towers and has 210 truck and crawler tractor fire fighting units. For communications, 575 two-way radios are in use, and 16 airplanes (4 owned by the Commission, 12 owned by private contractors) are used to supplement fire detection methods during periods of low visibility and high fire danger.

Chief Engineer Ralph E. Laughlin, of the Mississippi State Rating Bureau, calls attention to the new training facilities of Jackson, Mississippi, which were used for the Annual Fire School. Over 100 men enrolled in classes conducted by fire department instructors from all over the state. The drill tower and main classroom building were built for $123,000. Also included in Jackson's training center is a training building, drafting pit, fire pit and target wall. The entire area is paved and enclosed by a fence.

Drill tower of new training center at Jackson, Mississippi.

ICE AUGER SPEEDS REACHING WATER



Self-contained generator, extension cord reel and ice auger ready to operate.

IN MANY sections of North America, the winter season brings a special problem for fire departments protecting rural areas. These departments must rely, to some extent, upon static, natural water supply in lakes, ponds and streams. Once extreme cold weather sets in, many of these sources become covered with a heavy layer of ice and snow which may be practically impenetrable. Consequently, despite the fact that a rural fire department has done careful pre-fire planning, Old Man Winter can stymie all plans for fire fighting simply by freezing available water supply.

As mentioned previously in this magazine and in the new NFPA Book *Fighting Rural Fires*, in some localities it is possible to keep static water supply open as a source for pumper suction. Barrels, baskets, or plugs, floated on a lake, pond or stream before it freezes, will permit quick use of the water, even though a thick layer of ice may form around them. On fast-running streams, the ice layer may not be too thick and may be easy to penetrate. Many rural fire departments are familiar with these situations and are prepared to make use of static water sources in the worst weather.

In Rindge, New Hampshire, for example, Chief Russell E. White has developed a special auger for cutting through ice and snow to provide enough space for the insertion of a suction hose. The auger is just about 30 inches in length and weighs 3 pounds. It is attached to an electric (½-inch) drill which is powered by a generator carried on a pumper. Chief White points out that the generator and the drill must be of the "approved" type (3-wire system, properly grounded) and that the drill, for this operation, cannot be used from electric power lines. In operation, the generator is started and the drill with the auger is carried to the ice with an extension cord. After a careful start, moderate pressure is applied as the auger bores in vertically. Chief White states that he has opened a 9-inch hole in 23 inches of ice in 30 seconds, and in 33 inches of ice in 40 seconds. The holes drilled are clean of slush and may be used immediately for the suction hose. A special "elbow" with a round screen on the end is attached to the suction hose, to facilitate reaching the water without bending the hose.

It is fundamental that full caution must be used when operating electric-powered tools. The shock hazard must be minimized and the vibration or slipping of the tool must be anticipated. Chief White's ice auger, for example, has a disc on the shaft to protect the feet of the operator and to limit the descent of the auger.

Initially, auger is held vertically and gentle pressure is applied.

Start of cut. Disc protects feet of operator and keeps drill from plunging through hole.

Completion of drilling. Unit works equally well on frozen snow or hard ice, or combination of both.

SURVEY OF STATE AND PROVINCIAL FIREMEN'S TRAINING — 1961

AGAIN this year, FIREMEN magazine presents its annual survey of State and Provincial Firemen's Training. Following the trend of recent years, the reports from the directors of fire service training continue to show consistent growth in the number of men taking training, the variety of courses offered, and in new facilities or methods of training.

This report covers only the training activities in the fiscal year ending June 30. It does not include the many training classes conducted on a local or area level.

Because trends and new developments in training are covered for individual states in the *Regional Round-Up*, the article on the following pages is a general summary of highlights for the individual states and provinces. Even in this digest of the many reports submitted, it is evident that the fire service is receiving better instruction on a wider variety of subjects than ever before.

ALABAMA: W. L. Rickard, Assistant State Supervisor, Trade and Industrial Education, reports that 725 firemen received state training last year, including 191 who attended the 25th Annual Alabama State Fire School. A special First Aid Instructors School attracted 27, while a new Fire Prevention and Arson Investigation School had an attendance of 91. LP-Gas fire control tests were conducted. Greater use was made of motion picture films to supplement training. Future plans include initiation of an annual Fire Department Instructors course.

ARIZONA: William R. Woodfin, Supervisor, Industrial Education, reports that 172 firemen participated in the 8th Annual Arizona Fire Training College. Special emphasis was placed on radio communications, inspection procedures and special problems such as fires in explosives, rubber, LP-Gas, flammable liquids and crashed aircraft.

ARKANSAS: Whit Murphy, State Fire Instructor, reports that 6,564 took part in the training program last year. (Arkansas plans training on a calendar year basis.) Two officer training sessions drew a combined attendance of 94 men from 77 fire departments. A three-day teacher-training school, attended by 73 men, included courses in Leadership and Administration, Basic Principles of Training, Speech Communications Techniques and Methods of Teaching Pump Operations. An interesting feature was a session on Fire Service Laws. A total of 255 locally conducted courses were completed during the year by state, area and local instructors for a combined total of 4,445 men. Fifteen two-week regional schools were attended by 1,952 men from 157 departments.

Special training in aircraft crash rescue and fire fighting procedures was given to 248 officers and men of the Little Rock Air Force Base. Similar classes were conducted at the Municipal Airport in Fort Smith.

BRITISH COLUMBIA: In British Columbia, 1,503 men received training last year, reports Fire Marshal Basil Nixon. A Provincial Fire College was held in Penticton, and 18-hour regional schools were conducted in 97 localities. New training classes included radiological instruction, which was given in areas where isotopes are located. The program also included numerous practice fires. Training was given to inmates of the Correctional Institute, as well as to men at the Smelting Plant and the Forest Rangers School.

CALIFORNIA: Thomas S. Ward, Supervisor, Fire Training Program, reports that 4,814 men, representing 425 departments, were trained in a total of 188 zone and departmental schools. Instruction was given in Use of Fire Apparatus and Equipment, Water Supply and Control, Salvage Operations, Fire Strategy, Structural Fire Control, Pump Operation, First Aid and Lifesaving Operations, Aerial Ladder Operation, Officer Training, Company Administration and Instructor Training.

An Oil Fire Control School, attended by 576 persons, was held in Bakersfield in cooperation with the Western Oil and Gas Association and the Kern County Fire Department, while Fresno was the site of the Eighth Annual Fire Training Officers' Workshop, which had a registration of 197. Two hundred and one arson investigators, fire marshals, police inspectors and investigators and fire department officers and personnel from eight states attended the Eighth Annual Arson and Fire Investigation Seminar held in Los Angeles.

COLORADO: E. W. Crawford, Head, Firemanship Training Section, Department of Education, reports that 7,448 firemen received training last year. The Colorado State Firemen's Association Fire School was held in Salida, while Radiation Monitoring Schools were conducted in Denver, Pueblo and Colorado Springs. Special training courses included a Leadership course for chief officers of the Tri-County Area surrounding Denver, as well as classes in Modern Methods of Firemanship Training. Twenty-one test fires were conducted during the year, the largest in a four-story hotel.

Fire brigades in the Denver Federal Center and the Rocky Mountain Arsenal were supplied with film and teaching aids. Future plans call for the addition of one more Coordinator for the North-Eastern District, and four 30-hour area Officers Training Courses.

CONNECTICUT: Andrew J. Flanagan, Supervisor, Firemen Training, reports that 1,096 firemen participated in the program last year. Two hundred and eighty-one men attended the State Fire School, which featured a course on Radiation Hazards. The University of Connecticut was the site of two training conferences. The Fire Officers Conference attracted 104 participants, while 114 men attended the Fire Marshals Conference. Two 15-week courses in Fire Administration, also conducted at the University, were attended by approximately 40 men. A one-day session at the Willimantic Fire School drew 473 men.

Planned are a new Fire School at Torrington (Burrville), additional funds for the Willimantic Fire School, and a new training course for fire marshals.

DELAWARE: Frank M. Forstburg, Supervisor of Industrial Education, reports that 1,447 people received training last year, with 402 attending the Annual Fire School and 14 attending the Instructors School.

FLORIDA: Training at the Florida State Fire College is broken down into 30-hour units, reports Superintendent W. H. Barnett. Three hundred and twenty-five firemen were enrolled in this training, while 1,506 men attended regular itinerant training classes. A total of 337 firemen attended special classes on air conditioning, fuel gases and flammable liquids, a Fire Department Mechanics of Florida school, an Arson Seminar, a training conference, a Fire Alarm School and a Pump Maintenance School.

New units of training include rescue and administration. Future plans call for a state-wide school for instructors in the handling of liquid propellants used in guided missiles.

GEORGIA: W. Neal Ratcliff, Head, Georgia Fire Institute, reports that 3,774 firemen received training last year, with 490 attending the Annual Fire School. Much emphasis was given in the training programs and zone schools to the techniques of fighting fires involving nuclear materials, liquid petroleum gas, electricity and military aircraft carrying thermonuclear weapons.

The Price Gilbert Library, which distributes and cares for the Fire Institute training films, received 460 requests for films.

IDAHO: Chief Steve Taylor, of the Boise City Fire Department, reports that 500 firemen were trained last year, with 157 attending the annual fire school. Five men attended a special civil defense training course, while the Airplane Crash & Rescue School trained four men. Other special courses included a Fire Department Command School and instruction in mouth-to-mouth resuscitation. A new class on fighting ammon-nitrate fires was also inaugurated.

ILLINOIS: Chief J. I. Fetters, in charge of Firemanship Training at the University of Illinois, reports that 14,289 firemen received training last year, with 765 attending the 37th Annual Fire School. Besides a course in the fundamentals of firemanship, offered at 69 centers, the training program included specialized training in extinguishment of fires in condemned buildings, fire inspection techniques, fire instructor procedures, fire pumper operation, fire officer refresher classes and fire fighting exhibitions.

Continuing its fire safety program for nursing homes and hospitals, Illinois conducted two classes, of two hours or longer, in 13 nursing homes. Firemen in the communities housing the nursing homes attended all the classes.

All state training was conducted by eight part-time instructors and the permanent University Extension staff.

INDIANA: Professor Shelby Gallien, Director, Public Service Institute, reports that Indiana trained 2,358 firemen last year, with 136 attending the State Fire School. Eight campus short courses, including the State Fire School courses for Fire Inspectors, Fire Instructors, and Fire Administrators; the Basic Fire School; the Industrial Fire Safety Course; the Arson Seminar and the Rescue School, had a total enrollment of 696. The field fire training program, conducted through grant of $10,000 from the State of Indiana through the facilities of the State Fire Marshal Department, trained 1,662 men representing 102 fire departments. Six hundred and eighty-nine of these received the Basic Ten-Hour training course, while 973 received instruction on the Officers Training level.

IOWA: A total of 4,820 firemen were registered in Fire Service Extension Classes last year, reports R. E. Patterson, Associate Director, Engineering Extension. A permanent record is maintained in the Fire Service Extension office of each individual who has participated in classes.

Campus short courses held during the year include the 37th Iowa State Fire School, the Iowa Fire Inspector's Short Course, Radiological Monitoring Instructors Course, Industrial Fire Safety Seminar, and several one-day sessions on various technical subjects. Local departmental fire schools are handled primarily by a staff of 18 part-time instructors, who conduct an 18-hour basic course. Other regional courses are the Dubuque Regional Fire School, the Cedar Rapids Industrial School, and regional instructor training and officer training classes. The Fire Service Extension Staff produced a new training film. (See page 35.)

KANSAS: Clyde A. Babb, Director of the Kansas Fire School, reports that 2,097 firemen received training in Kansas last year, with 285 attending the annual Fire School. Other training schools drew an attendance of 470. A special Company Officer Training Course was conducted, and fire control tests were featured at the Annual School and the Johnson County Fire School. Future plans include a water safety and recovery class for the next Annual School, radiation hazard short courses and arson detection training.

KENTUCKY: John L. Thompson, Chairman, Kentucky Fire School Committee, reports that 3,349 firemen participated in the program last year, with 790 attending the annual State Fire School. The Industrial Section of the State School attracted 85. Three other training schools had an attendance of 347.

MAINE: Nelson Ingalls, Supervisor, Fire Service Training, reports that 1,345 firemen received training. Two Hale Priming Trainers were used to aid instructors. An instructor training course in Peacetime Radiation Hazards is being planned for the future.

MARYLAND: Robert C. Byrus, Director, Fire Service Extension, University of Maryland, reports that 1,734 firemen received 60 class hours of training last year, with 283 attending the State Fire School. Other special training schools, offering 16 to 60 class hours, attracted 1,264. An officer training class met monthly for 6 months in six separate locations. The University Extension also offered one-day courses at the University or in individual regions.

New training classes inaugurated last year included Use of Power Tools, Radiation Meter Reading, Heavy Rescue, and Advanced Hydraulics. Instructors used 12-inch gages as teaching aids in the hydraulics classes. Special tests were conducted on the use of surface tension enhancers.

Byrus also reports that a $357,000 capital improvement program is under way, with completion planned for midsummer of 1962.

MICHIGAN: Francis Hartman, Supervisor, Firemanship Training, University of Michigan Extension Service, reports that 3,929 firemen took part in the program last year, with 350 attending the State Fire School. Other training courses included five 40-hour basic Firemanship Training Classes, attended by 102 firemen; eleven Regional Fire Training schools, which attracted 1,796 firemen, and a three-day Officers Training Course in Escanaba. A combined total of 557 attended annual conferences and seminars. The University also conducted 18-hour in-service training classes throughout the state. This is handled by two full-time men in the field who are assisted by approximately 35 part-time instructors.

For the first time, all training classes included instruction in radiological defense, and instruction in radio operations was included in the Officers Training Course and the Fire Chiefs Training Conference. Highlight of the 33rd Annual Fire College was an illustrated lecture from the staff of Selfredge Air Force Base, covering rockets, ammunition and nuclear weapons in crashed aircraft.

MINNESOTA: E. L. Weber, Assistant Commissioner, Fire Marshal Division, reports that 1,900 men received training last year. Four hundred men took part in the 10th Annual State Fire School.

The 14 regional firemen's associations each held an annual fire school, with attendance varying from 100 to 300.

MISSISSIPPI: J. W. Browne, State Supervisor, Trade and Industrial Education, reports that 103 trainees attended the First Annual Fire Fighters' School, held in the new firemen's training center at Jackson. Although annual fire schools have been held on the campuses of the state universities in the past, this is the first Mississippi school to be financed by state appropriation.

MISSOURI: W. Bush Walden, Administrative Assistant in charge of Firemanship Training, reports that 2,212 men took part in the program last year, with 324 attending the

State Fire School. Extension training in local fire departments attracted 1,122 participants, to 142 classes, while 10 regional conferences had a combined attendance of 1,090. A new fire training building is planned for the University.

MONTANA: Nine hundred and eight firemen received training last year, reports W. Lyle Roeseler, State Supervisor, Trade and Industrial Education. Use was made of visual training aids, such as films, water screen, cut-away old extinguishers and electrical overload demonstration boards. Future plans call for the development of additional instructional aides, and instructors will attend special schools on radiation hazards.

NEBRASKA: Howard Gorham, State Director, Trade and Industrial Education, Vocational Education Division, reports that 7,258 firemen received training last year, with 1,143 attending the State Fire School. Courses featured at the three-day Fire School included Control of Fire Gases and Fire Pump Operation and Practices. Other training activities last year included conferences to assist with fire apparatus and equipment specifications, explanation and organization of rural and volunteer fire protection districts, fire department and mutual aid demonstrations and lectures, fire department rescue and first aid, fire prevention lectures and demonstrations, instruction on actual fires, instructor training, on-the-job training with burning tests, specialized instruction in maintenance and various phases of fire apparatus and equipment, and standardization of fire hose, hydrants and appliance threads. Seventeen training circuits had a total enrollment of 1,910. Instruction was also given to plant fire brigades.

NEW HAMPSHIRE: Fire Marshal Aubrey G. Robinson reports that 593 firemen took part in the training program last year. Courses at the Annual Fire School covered all phases of fire fighting and use of equipment, as well as new executive training on handling of men. Plans are being developed for Instructors' Training, and for state-sponsored training facilities.

NEW JERSEY: Twenty-two hundred firemen received training last year, reports Chief Russell M. Hunt, President, New Jersey Fire College. The Fire School is a three-year course, consisting of two weekend sessions each fall and seminars in the spring.

Industrial fire brigades training is under the direction of the Industrial Fire Chiefs' Association of New Jersey, which carries on a 10-month program. This association has a membership of over 300.

NEW YORK: Firemen attended courses for a total of 183,116 man-hours, reports George H. Proper, Jr., Acting Director, Division of Fire Safety. Seventy-four state instructors and 32 municipal drillmasters or training officers attended the 13th State Fire Instructors' Conference.

The Division of Fire Safety is presenting two new courses a year, working towards the development of a basic fire curriculum which will include 15 to 18 specific courses. Last year, an 18-hour course on Ladder Company Operations and a 9-hour Officers' Training course were added. Other subjects covered were pump operations, fire investigation, and single company operations. A week-long conference on Radiation Safety for Firemen was also held.

OHIO: Byrl R. Shoemaker, Supervisor, Trade and Industrial Education Service, reports that 8,559 firemen took part in the program last year. Three thousand and thirty-six enrolled in 169 basic training classes taught by 124 instructors, while 23 regional schools had an attendance of 3,985. Three officer training classes attracted 39 participants, and 1,244 men enrolled in 30 squad training classes. A total of 255 attended instructor, officer and squad training classes at the Institute.

OKLAHOMA: R. J. Douglas, Head, Department of Fire Protection Technology, reports that 2,612 received training last year. Two hundred and sixty-six firemen attended the 28th Annual Fire School, 15 attended the Rookie Academy, and 85 took part in officer training classes. Radiation monitoring instruments were obtained for a new Radiation Hazards course for certified fire instructors, which drew an attendance of 18. The training program also included a demonstration on fighting metal and high energy fuel fires and a control test on fighting fires in crude oil having a high distillation rate at low temperatures. Future plans call for a school on radiation detection as well as pre-fire planning of areas containing radioactive materials. Also planned are more schools on officer training for local departments.

OREGON: Director Elmer H. Halstead, Public Service Education, reports that 1,691 firemen received training last year. Area Pump classes had an enrollment of 367, while area classes on Fire Scene Problems attracted 885. Also held last year were quarterly state-wide instructors' work shops. Field tests were conducted on 3M proximity suits, and a research and experiment program has started working towards classifying information to establish point of origin of fire. The training program also took in industrial and institutional fire brigades. New educational centers, established by the legislature last year, will permit wide-range training on the local level through part-time supervision. Tentative plans have been made for a state school for apparatus operators.

PENNSYLVANIA: Arthur W. Espey, Supervisor, Fire Service Training, Public Service Institute, reports that 10,999 firemen received training last year, with 233 taking part in the 23rd Annual Fire School. Forty-seven local classes in 27 counties had a registration of 1,608. Practical Fire Training classes at the State Firemen's Training School in Lewistown had a total attendance of 812, while 18 special classes in such subjects as fire prevention and first aid attracted 350. Fire schools were also held in 29 counties.

SASKATCHEWAN: Deputy Fire Commissioner A. I. Dron reports that 762 firemen received training as a result of 30 training schools. In addition, 265 recruits attended six

TOTAL FIREMEN RECEIVING TRAINING
(State and Provincial Programs Only)
Year Ending June 30, 1961

State		State	
Alabama	725	New Jersey	2,200
Arizona	172	New York	*
Arkansas	6,564	Ohio	8,559
California	4,814	Oklahoma	2,612
Colorado	7,448	Oregon	1,691
Connecticut	1,096	Pennsylvania	10,999
Delaware	1,447	So. Carolina	*
Florida	2,168	Tennessee	1,266
Georgia	3,774	Texas	3,810
Idaho	500	Utah	158
Illinois	14,289	Vermont	300
Indiana	2,358	Virginia	2,500
Iowa	4,820	Washington	4,193
Kansas	2,097	West Virginia	462
Kentucky	3,349	Wisconsin	7,170
Maine	1,345		
Maryland	1,734	Total U. S.	121,420
Michigan	3,929		
Minnesota	1,900	British Columbia	1,503
Missouri	2,212	Saskatchewan	762
Montana	908		
Nebraska	7,258	Total Canada	2,265
New Hampshire	593	Gr. Total	123,685

*Figure unavailable.

special training schools with the Royal Canadian Mounted Police, and 239 attended six special civil defense training schools. A provincial civil defense fire instructors' course attracted 75.

Training also included three fire control tests on natural gas line leaks under pressure above and below ground. Attended by 71, the demonstrations were conducted in cooperation with the Saskatchewan Power Corporation.

Five industrial fire training programs attracted 165, while 13 other meetings had a total attendance of 488.

SOUTH CAROLINA: H. Burton Wells, Instructor, reports that the training program is sponsored jointly by the South Carolina State Firemen's Association and the Trade and Industrial section of the State Department of Education. Weekly classes are held all year, and this year a new class in Radiation Hazards in Fire Fighting was added. Actual building fires were featured in some classes.

TENNESSEE: A total of 1,266 firemen participated in the Annual School and Itinerant Training Program last year, reports Homer S. Elkins, Itinerant Instructor-Coordinator, Fire Service Training. Other special training schools included four 4-day short courses. These included new courses in Home Inspections and Public Relations, and Pumps and Hydraulics, as well as an instructor training course and an Industrial Fire Protection course. A total of 95 industrial men were trained last year. The program also included fire control tests held during the Annual Fire School.

Last year the legislature appropriated money to build a 30- by 60-foot building to be used for smaller classes at the Fire Training Center.

TEXAS: Henry D. Smith, Chief, Firemen's Training School, reports that 3,810 firemen were enrolled in training courses last year. The 32nd Annual Texas Firemen's Training School was attended by 1,657 men from 440 cities and towns from fifteen states. A staff of four full-time instructors conducted 78 local classes for 83 fire departments, and one instructor conducted 8 classes in fire prevention training for fire prevention personnel of 12 departments. A new course in Fire Department Administration was added to the itinerant program, with a pilot class conducted in Odessa for 22 fire department officials.

One light duty and two heavy duty rescue training courses were conducted for 62 students from 24 towns. Also featured was a radiological monitoring instructor training course which drew 15 men from 7 departments.

UTAH: A total of 158 firemen took part in the training program last year, reports Von H. Robertson, State Supervisor of Training, Trade and Industrial Education. A unit on radiation was introduced into all courses, and a new State Manual on Training for Volunteer Firemen is being developed. Attention was also given to training of industrial and institutional fire brigades. A state-wide study of fire prevention and fire protection, now being conducted, will be completed in 1962.

VERMONT: Approximately 300 firemen took part in the training program last year, reports Walter B. Read, Coordinator, Vermont State Firefighters' Association. Instructors used a priming trainer and flip charts for training, and a pump operators' course is being developed.

VIRGINIA: Firemen training has been increasing in Virginia, reports R. Lawrence Oliver, State Fire Instructor, Trade and Industrial Education. In the past ten years, the state has increased its training of firemen well over 75%, and a new training center has been built to accommodate the demand for more training. Two thousand, five hundred firemen received training last year, with 150 attending the State Fire School. The zone schools and local schools each had a total attendance of 1,250, and a State Instructors' Course attracted 16. Demonstrations of fire hazards in Missile Warfare were held at the State School, and a class on Radiation Hazards was held this November. Future plans call for a Radiation and Monitoring class, Officers' Training, and a State Instructors' course.

ANNUAL STATE-WIDE FIRE SCHOOLS
1961

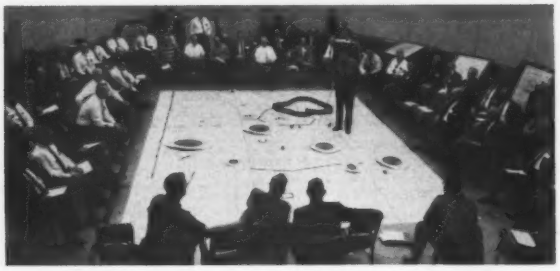
State	Firemen Attend.	No. Years Held
Alabama	191	25
Arizona	172	8
Colorado	*	28
Connecticut	281	20
Delaware	402	10
Georgia	490	29
Idaho	157	12
Illinois	765	37
Indiana	136	*
Kansas	285	32
Kentucky	790	27
Maryland	283	28
Michigan	350	33
Minnesota	400	33
Mississippi	103	1
Missouri	324	*
Montana	908	*
Nebraska	1,143	24
New Hampshire	*	*
New Jersey	*	14
Ohio	255	16
Oklahoma	266	28
Pennsylvania	233	23
Tennessee	*	18
Virginia	150	15
Washington	500	30
West Virginia	140	31
Total	12,291	

*Figures unavailable.

WASHINGTON: Lyle Goodrich, Supervisor, Firemen Training Program, reports that 4,193 were on the roll call last year, with 500 attending the Annual Fire School. Two new subjects were introduced at that School — Radio Procedure and Automatic Sprinklers. A four-day Command School in Yakima had an attendance of 172. Other training included area schools, in conjunction with regular basic training courses, on LP-Gas and Flammable Liquids. Portable props for these schools were developed with the cooperation of the oil industry of Washington. Protective clothing tests were held last year, and two test burnings were conducted in July and September of this year. Two industrial fire brigades also received training. Plans call for the development of an Inspectors' Short Course and an Oil Fire Control School.

WEST VIRGINIA: Four hundred and sixty-two firemen took part in the program last year, reports R. E. Hanna, Jr., Assistant Director. One hundred and forty attended the 31st Annual Fire School which offered instruction in Industrial Fire Protection. In addition, the State's training program featured courses in Department Administration and Inspections, and special fire control tests were conducted with high expansion foam.

WISCONSIN: William E. Clark, Supervisor, Fire Service Training, reports that 7,170 received training last year. One hundred and thirty-four in-station basic courses had an enrollment of 3,077, while six regional schools attracted 2,724. Nine Practical Short Courses, held where buildings were available for burning, had an attendance of 490, and five special schools gave training to 767 men. In addition, four in-plant industrial courses were held in three counties, with a total enrollment of 112.



Fire Chief Edward A. Hamilton, of Memphis, Tennessee, takes his "final exam" on "home territory" as he solves a mock fire emergency using knowledge learned during the first Staff and Command Course.

Typical classroom session of the Staff and Command School. At the rostrum is B. Richter Townsend, Executive Director of the International Association of Fire Chiefs.

Highlights — Staff and Command School

THE "pilot course" of the National Fire Staff and Command School was held at Battle Creek, Michigan, October 16–28. It brought together a specially chosen group of municipal fire officers, state and provincial fire marshals, forest service officers, state training directors, and representatives from the military and civil defense. These men participated in an intensive two-week program with more than 8 hours each day given to instruction, discussion and evaluation of many problems pertaining to fire in peacetime and wartime.

As mentioned previously in this magazine, the course was the result of recommendations developed from four National Fire Defense Seminars held in the United States in 1960. At the conclusion of these seminars, the recommendations of the participants were evaluated, and a committee drew up the program of the National Fire Staff and Command School. As a result, those attending the course were introduced to the problems of fire defense on a national scale, including municipal, county and state-wide fire department operations, forest service organization, problems, and fire control, and large-scale operations that would be necessary in event of wartime attack or natural disasters which would activate civil defense and military.

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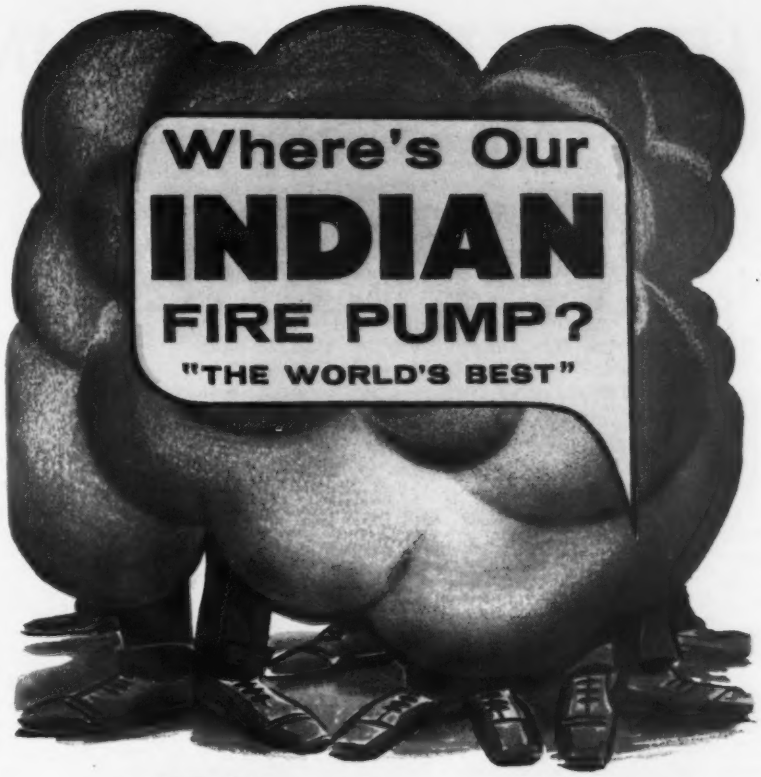
In general, the first week of the course dealt with over-all interstate and national potentialities and needs which have primary effect on fire service operations. The second week dealt more with specific functions such as communications, command and control, manpower, campaign fires, supply, command tactics and strategy and map reading. Each day's session was followed by a half hour summary and question period. Speakers, instructors and general presentation were of top quality.

The course gave those attending a unique opportunity to study and evaluate the many problems created by fire. Municipal fire service personnel and forestry personnel had an opportunity to present and discuss the problems and operations peculiar to each service as well as to gain some knowledge of the tremendous potential of wartime fires and radioactive fallout and the general need for improvement to meet those problems.

Major credit for coordinating the instruction and activities of the two-week course should go to Robert C. Byrus, Director, Fire Service Extension, University of Maryland, Chairman of the training subcommittee which developed the course, and John Fitz Patrick, Deputy Director, Community Services Office, Office of Civil Defense, Battle Creek.

Fire officers discuss fallout behavior with Barent F. Landstreet, Community Services Director, Office of Civil Defense, Department of Defense. Patterns on the map indicate how fallout from nuclear blasts in target areas would spread across the United States. From left to right are: John E. Clougherty, Assistant Chief of the Boston, Massachusetts, Fire Department; Fire Chief Carl P. Johnson, of Portland, Maine; Fire Chief Walter R. Messer, of Keene, New Hampshire, and Landstreet.



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LET'S GET FIRE COMPANIES MANNED

by Warren Y. Kimball, Managing Editor FIREMEN Magazine
Manager, Fire Service Department

ONE of the great obstacles in providing proper manning for fire companies has been an almost total lack of proper management planning devoted to this matter. And this is despite the fact that, in paid fire departments, manpower costs far exceed 90 per cent of the annual budget. The practice generally followed is to decide upon a nominal work week and then assign a complement of men, who nominally work the required hours, to a station or company with the faint hope that someone will be on duty all of the time. For example, a 56-hour work week is in effect and 15 officers and men are assigned to a company, 5 to a shift. But on "A" shift, one man is on vacation, another is off on injured leave, another is off sick, leaving two regular members available. Even if another man is detailed to the company it is still running short.

A more correct way to calculate manpower requirements is upon a basis of the actual man-hours of work to be covered. Each week there are seven 24-hour days or 168 hours that the apparatus must be manned. To provide a 5-man crew requires that a total of 840 man-hours must be worked. Now, if the men are working a nominal 56-hour week it might seem that all we need to do is to divide 840 by 56 and find that we need 15 men assigned to the company. This does not work, however, because each man is entitled to 2 to 4 weeks vacation and there are absences due to sickness and injury to be covered. A study of the records shows that under the 56-hour system each man averages a little more than 50 hours per week actually on duty. Thus, to cover 840 working hours per week (5-man crew) we divide by 50 hours and find that we will need 17 men to provide the needed hours. However, if the men are working a three-platoon system, the 17 men would provide 6 men on two shifts but only 5 men on the other shift. Thus, there would be no relief man on the third shift. Where there are several companies in the same station it may be possible to have a relief man as "floater" who can cover for absences in several companies. However, as this may reduce company efficiency and teamwork, it would be preferable to provide an 18-man company in this case.

Table 1 shows the number of working hours that must actually be covered per week to provide on-duty forces shown.

Table 2 shows the minimum number of men that must be assigned to maintain these strengths with varying work weeks.

One reason why poor fire department manning has become so general and is tolerated by municipal officials and the public is that there is little attempt to justify and adhere to good basic manning. Under present practice, a so-called company may roll today with 5 men, tonight with 3 men, and tomorrow with 4 men.

However, if the principle of covering essential positions 168 hours a week were adopted, then each position on the apparatus could be manned as required to maintain operating efficiency.

One way in which this could be done would be by appropriating money for overtime pay to assure that at no time on-duty strength would fall below a prescribed figure. For example, suppose that required manning for a company was 5 men on duty, amounting to 840 hours per week, but manpower assigned and available amounted to only 768 man-hours per week. Rather than run the company short for 72 hours or 3 out of 7 days during the week, the city could pay overtime to maintain the effective company strength. In other words, the fire department budget should include adequate manpower to cover essential positions round the clock. If sufficient relief men are not provided to cover for normal absences, then members of the company could be offered overtime work.

In other areas of employment not nearly so vital to public safety the idea that a three-man crew can do five men's work would not be tolerated. There has been too much gambling with inadequate fire protection. Undermanned fire companies may save a few dollars at the expense of human suffering and human life and needless destruction by fire. Let the fire service make a real effort to maintain effective fire company strength.

Table 1

No. Men on Duty	Man-Hours Required per Week
4	672
5	840
6	1008
7	1176
12	2016
15	2520
18	3024

Table 2

Number of Officers and Men Required to Provide Manning Shown*
(Based upon 10% Absences Due to Vacations, Sickness, etc.)

No. on Duty	40-Hour Work Week	42-Hour Work Week	48-Hour Work Week	56-Hour Work Week	60-Hour Work Week	64-Hour Work Week
4	19	18	16	13	13	12
5	23	22	20	17	16	15
6	28	27	23	20	19	18
7	33	31	27	23	22	20
12	56	54	47	40	37	35
15	70	67	58	50	47	44
18	84	80	70	60	56	53

*In some cases one or two extra men may be needed because work groups or platoons are not even. For example, if a 48-hour week is worked in a 7-group system, 21 men may be needed to provide a minimum of 5 on duty and 49 men may be needed to provide 12 men on duty so that the working groups will be evenly manned.

Do You Have Pumpers Without Generators?

Do You Waste Time Lugging Generators To Upper Levels And Stringing Out Extension Cords?

This Practice Is No Longer Necessary . . .

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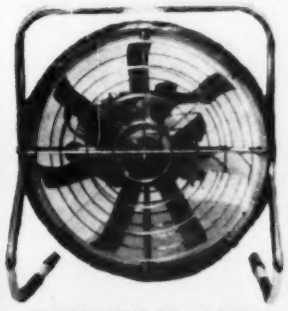
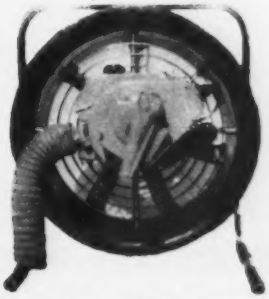
18- or 24-inch Controlled Airstream Units operate without extension cords, generators or compressors. They are LIGHT, COMPACT, HAND-PORTABLE, SELF-CONTAINED and DEPENDABLE! Each operates for 1 hour on 1½ quarts of fuel. A 250 lb. torque impulse starter assures instant starting. The 2½ hp Prime Mover with a 7 blade propeller enclosed in an aero-dynamically designed duct guarantees CONTROLLED VENTILATING PERFORMANCE UNEQUALED BY ANY OTHER air-moving apparatus. High or low velocity air flow is obtained simply by adjusting the throttle!

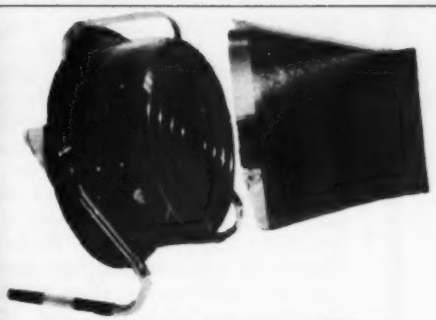


FRONT VIEW OF 18-INCH "STUBBY" MODEL

18" REMOVING SMOKE AT VAN NUYS. NOTE SMOKE TRAVELING PAST PORCH.

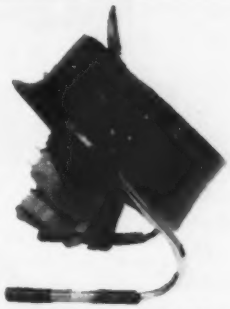


REAR VIEW SHOWING IMPULSE STARTER & FLEXIBLE BREATHER TUBE



BREAKAWAY MODEL — TRANSITION SNAPS ON-OFF QUICKLY

ADJUSTING VERTICAL AZIMUTH DEVICE



STUBBY MODEL AT 45 DEGREE TILT

The flex-tube attached to the carburetor extends to within one inch of the floor. It is a very important item when the Unit is operated in a room so charged with smoke, clean air is confined to within ONE INCH of the floor. REMEMBER, any structure can be ventilated faster by blowing fresh air in to force foul air out. Air Units can be operated anywhere, any time except in explosive gas-filled enclosures. Start the Unit and let it blow clean air in to dilute the gases below explosion point. If you would NOT operate a nonexplosive electric motor in gassed areas then DON'T operate a gasoline engine. Air Units equipped with explosion-proof electric motors are available with nearly the same performance ability plus the added feature of the CONTROLLED AIRSTREAM not found in other air-moving devices.

Your satisfaction guaranteed. Inquiries answered promptly. Investigate our deferred payment plan. Made under Pat. No. 2,891,624. Other pat. pending. Dealers welcome.

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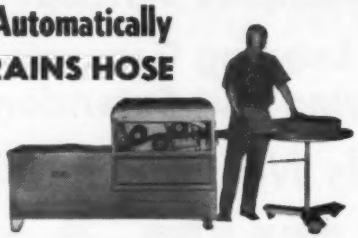
WASHES – RINSES – DRAINS HOSE

ROTO-JET Washes, Rinses, Drains hose thoroughly and quickly. Hose is self-propelled. Simple one-man operation. With or without detergents, ashes, glass and sludge are automatically scrubbed out and flushed away. Lengthens hose life. Foot-Pedal Operation.



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FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates pre-warmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. No other drying method is so fast — so economical — so easy to use. The preferred dryer in over 6,000 leading Fire Departments.

ACCEPTED — APPROVED RECOMMENDED

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No. 5A – "NEW YORKER"

(LEATHER REGULATION)

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CAIRNS & BRO., Inc. — Allwood, Clifton, N. J.

SINCE 1836

Roy Adams Retires

MANY fire service members in New England will be sorry to hear that Roy W. Adams has retired as Director of Vocational Training Field Service in Connecticut. For many years he played a major role in developing and coordinating the excellent fire training programs, particularly the Officers' Workshops, which attracted a capacity crowd each year.

In a letter to NFPA, Roy asked that his sincere appreciation and thanks be extended to the many organizations and individuals who assisted in Connecticut's outstanding firemen training programs. He will be succeeded by Andrew J. Flanagan, Supervisor of Firemen Training, Connecticut State Department of Education, 500 Brookfield Street, Hartford, Connecticut.

Unique Retirement Gift

WHEN Chief Eben N. Briggs retired from the Duxbury, Massachusetts, Fire Department, recently, more than 500 friends, acquaintances and fire chiefs attended a testimonial banquet. Members of Duxbury's Fire Companies No. 1 and 2 presented him with this handsome floor lamp, which stands six feet high and weighs 125 pounds. The nozzle was used on a 1905 hand tub, part of it coming from a 1921 Brockway hose wagon. The bell came from a 1921 Brockway combination chemical and hose wagon. The base is solid brass.

Briggs has been chief of the department since 1942.

The fireman had just caught his small grandson up to his ears in mischief. "Bobby," he asked, "how do you expect to get into heaven?"

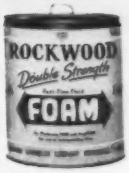
Bobby thought a minute and then replied, "Well, when I get there, I'll just run in and out and in and out, and keep slamming the door until some angel says, 'For goodness' sake, Bobby, either come in or stay out!' Then I'll go in and stay."

— THE HOSE LINE

The moment they get there . . .

They put out fires faster!

Rockwood FOAM liquid provides a smothering, fine-bubble blanket over flammable liquid fires. Rockwood's FW Eductor introduces FOAM liquid into water streams.



You get faster extinguishing action when refinery and chemical fire trucks are equipped with Rockwood FOAM apparatus

Once a Rockwood-equipped truck reaches the fire, its FOAM system starts working — enabling fire fighters to hit harder and finish faster.

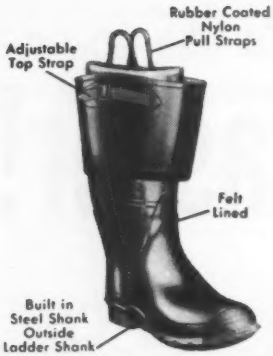
That goes for all the trucks shown here — just a few of the large number that carry FOAM equipment, developed by Rockwood for specialized fire fighting service at refineries and chemical plants throughout the country.

To these industries Rockwood offers the most complete line of specially engineered systems, devices and accessories for FOAM fire trucks — as well as FOAM systems for protecting refinery and chemical tanks.

Rockwood makes the world's most complete line of specialty turret nozzles. Providing the power so vitally needed at flammable liquid fires, these nozzles can deliver up to 10,000 GPM of expanded FOAM. All are adjustable for handling a solid FOAM stream, FogFOAM, WaterFOG or solid water stream. For details on the many Rockwood products that have proved their exceptional ability in refinery and chemical fires send for illustrated booklet. Rockwood Sprinkler Company, Portable Fire Protection Department, 426 Harlow St., Worcester 5, Massachusetts. Distributors in all principal cities. Rockwood Sprinkler Company, A Division of The Gamewell Company, A Subsidiary of E. W. Bliss Company. *Rockwood engineers water . . . to cut fire losses.*

ROCKWOOD

PORTABLE FIREFIGHTING EQUIPMENT



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★ 5 DIFFERENT STYLES
★ FELT LINED
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★ LADDER SHANK
★ FLEXIBLE STEEL INSOLES OPTIONAL

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ELECTRIC
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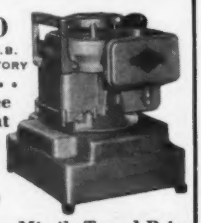
115 VOLT AC
for lights, tools, appliances
MITE-E-LITE

$249.50 F.O.B. FACTORY



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..Trouble Free
..Light Weight (60 lbs.)
..Compact
..Powerful
..Dependable

Because it's a new Missile-Tested Principle in a permanent magnet design — brushless — burnout-proof.

Operated by famed quick-starting Briggs & Stratton 4-cycle engine using regular gasoline.

Carry MITE-E-LITE with you for instant electric power anywhere.

Use one unit for 1500 watts; 2 for 3000; 3 for 4500.

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Firemen's Training

Maryland: An Industrial Fire Protection Short Course will be held February 6–8, 1962, at the University of Maryland. For details write J. C. Robertson, Senior Instructor, Fire Service Extension, Fire Service Building, University of Maryland, College Park.

North Dakota: An Officers' Training School will be held March 26–28 at Jamestown, and an Instructors' Training School will be conducted May 14–16. Also scheduled for the fiscal year ending June 1, 1962, are six regional schools, twelve subregional schools, and fourteen Radiological Monitoring Schools. For details write J. K. Eckes, Secretary, North Dakota Firemen's Association, Killdeer.

Gratz Named Chief

THE Silver Spring, Maryland, Volunteer Fire Department has announced the appointment of David B. Gratz as its first paid fire chief. Edward A. Cooke, President of the department, stated that the position was created on recommendations of the Maryland Fire Underwriters' Rating Bureau.

Chief Gratz has been a resident of Silver Spring since 1943 and is a graduate of American University, where he received a Masters Degree in Public Administration. He is former President of the County Firemen's Association and Chairman of the IAFC Committee on Volunteer Fire Departments, and was Chairman of the recent Governors' Conference on Fire Prevention in Maryland.

Occupancy Fire Record

FR 56-7A *Bowling Alleys* has just been issued. Priced at 50 cents per copy, this second edition has 16 pages with illustrations and tables plus fire record studies of bowling alley fires during the last four years. It has two main sections — Causes and Conditions Contributing to the Extent of Fire. A two-page section in the back covers the effects of sprinklers and the performance summary of sprinklers in bowling alleys.

This latest Fire Record Bulletin may be obtained from the NFPA Publications Department.

"But Chief, the captain said to cut the line."

Edward B. McCabe

THE fire service of the United States lost one of its most talented and promising young fire chiefs recently. On October 4, Chief Edward B. McCabe, returning from the Conference of the International Association of Fire Chiefs, was stricken with two heart attacks and died shortly before noon in the small Minnesota town of Lanesboro.

Chief McCabe had succeeded the late chief Edward H. Wischer as head of the Milwaukee, Wisconsin, Fire Department. His love and thorough knowledge of the fire service was supplemented by a college education and continual study of modern municipal practices. His outstanding personality and confidence were evident when he appeared on the program of the NFPA Annual Meeting in Detroit last May and at the recent IAFC Conference, where he moderated one of the "workshop sessions."

Leighton LeB. Maxim

LEIGHTON LeB. Maxim, 51, Vice President of the Maxim Motor Company, Middleboro, Massachusetts, died November 8 after a long illness.

Leighton was known to thousands of fire chiefs all over the country. His color photos of Maxim Motor Company fire apparatus set and on the fire ground were famous for detail and clarity and a joy for him to show at every opportunity.

Maxim Motor Company was established in 1888 by Leighton Maxim's father, the late Ernest L. Maxim, and his grandfather, the late Carlton W. Maxim.

Thomas S. McIntire

THE many friends of Thomas S. McIntire, President of F. N. McIntire Brass Works, Inc., Cambridge, Massachusetts, will be saddened to hear that "Tom" died suddenly at his home on October 24th.

In the early 1900's, Frank N. McIntire, father, assumed leadership of McIntire Brass and popularized the "Invincible" name with their Monitor Nozzles. Sons Edward and then Thomas successfully took over production, distribution and management of the company's complete line of hose brass goods for the nation's fire service.

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Carry hose yet keep hands free.

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- PRODUCES FOUR VARIABLE TYPES OF SIGNAL . . . including distinctive "WARBLE"
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345A Complete $29.95

A new high gain Crystal Controlled Converter. Excellent sensitivity. . . . Rugged construction . . . Easy to install. Designed for standard transistor car radios. Requires no high voltage supply. 30–50 MC or 150–162 MC.

KUHN CONVERTERS . . . the most advanced line . . . designed for optimum performance.

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Transistorized, directly Tunable Converter. Powered with self-contained mercury cell. Excellent sensitivity and stability. Designed for car, home or portable receivers. Two types available: Aircraft VHF 115–130 MC, or 150–162 MC.

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A new low cost Crystal Controlled Converter designed for use with standard transistor car radios. Operates directly from 12V DC. Rugged construction. Good sensitivity. Range 30–50 MC.

ORDER TODAY or SEND FOR FREE CATALOG containing complete information on a full line of: CONVERTERS AND RECEIVERS FOR EVERY APPLICATION

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A low cost Tunable Converter for any 10 MC area of: 30–50 MC or 150–160 MC. Easily installed. For use with home or auto sets.

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BUYING NEW EQUIPMENT?

Consider the products advertised in this issue.

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this month's News and New Products

For Warning and Communications

Intended for use on apparatus, ambulances and command cars, Fyr-Fyter Company announces a new 75-watt, one-package combination siren, public address and radio amplifier system called Penetrator. A special emergency "alert" signal sound is an added fourth voice. Contact Fyr-Fyter Company, 221 Crane Street, Dayton 1, Ohio.

•

Howe Acquires Oren

The Howe Fire Apparatus Company, of Anderson, Indiana, acquired the Oren Roanoke Corporation, the South's only fire truck manufacturer, on September 21, 1961.

R. S. Howe, president of the Indiana firm, said that the new owners will continue to make Oren fire engines at Roanoke.

The Howe Company, founded in 1872, is one of the oldest fire apparatus builders in the country and one of the largest producers in the world. Mr. Howe said that plans will be laid to expand Oren's market and sell in areas heretofore not penetrated.

"Our first move will be to market a fully powered steel aerial ladder truck to compete with all major apparatus builders. Models in the 65-, 75- and 85-foot range will be offered immediately," Mr. Howe said.

Oren was established in 1916, the original name being the Roanoke Welding and Equipment Company. During the first few years only an occasional fire engine was built for smaller communities. In time, fire apparatus business grew and when World War II came along Oren played a major part in producing fire engines for the Army and Navy. Since the war Oren built some of the largest pumpers made and sold in cities such as Dallas, Nashville, Providence and Greensboro.

Elevating Platform Apparatus

American LaFrance Corporation, Elmira, New York, has started production of its new elevating platform apparatus. Named the "Strato-Chief" it features a platform which can be elevated to 70 or 90 ft. working heights and incorporates pumps, ground ladders, hose and other equipment as specified. The platform is raised by articulated arms and is hydraulically rotated 360 degrees. Controls are at the base and in the "basket."

The equipment division of Young Spring and Wire Company, Bowling Green, Ohio, will build the aerial equipment to be installed on apparatus built by American LaFrance. The first production model is on the assembly line in Elmira.

•

Kissing Games

Linda Jeanne Jones was crowned Miss Fire Prevention of 1962 from 14 contestants at the second annual Fire Prevention Pageant at the Parris Island, South Carolina, Marine Corps Depot, but Sparky (a Depot fireman) obviously got the prize. Sparky is NFPA's home fire safety symbol.
(Official Marine Corps photo)

Six-year-old Walter Dennis gets a demonstration of dogged determination in sniffing out fires from Sparky (Fireman Norman Spears of the Milwaukee, Wisconsin, Fire Department).
(Milwaukee Journal photo)

New Film — "The Nozzleman"

A new educational training film entitled "The Nozzleman" has just been released by the Iowa State University Fire Service Extension, Ames, Iowa.

The 16mm, color, sound production is twenty minutes in length and emphasizes the importance of nozzle handling techniques and principles of fire behavior.

The introduction outlines the various types of nozzles, graphically shows their operation and explains their uses. The motion picture stresses the importance of choosing the correct attack for each individual fire situation. Colorful animation and live footage illustrates the difference between the direct, indirect and combination attacks. It continues to explain which attack should be used and why.

Other subject areas discussed in "The Nozzleman" are the stages of fire, overhauling, protective clothing, an approach through a second room and the use of penetrant foam.

The new educational film is being presented and distributed by Fire Service Extension at Iowa State University. Sponsor of the film is the Akron Brass Manufacturing Company, Inc., of Wooster, Ohio. Technical Advisors on the production are Keith Royer and Bill Nelson, Iowa State University, and Harold Strain, Akron Brass Manufacturing Company, Inc.

The motion picture was written, directed and edited by D. Fred Cook and produced by O. Steve Knudsen.

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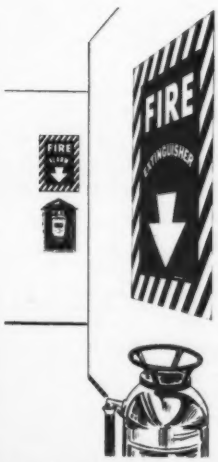


Location Markers on Red Plastic

The National Marker Corporation, 219 Wampanoag Trail, Riverside 15, Rhode Island, offers new self-adhesive location markers in brilliant red on tough, white plastic sheets. Also available on all-metal, one 9- by 13-inch sign reads Fire Extinguisher and another 13- by 18-inch sign reads Fire Alarm.

Proximity Clothing

Demonstrated at the recent New Hampshire Fire Chiefs' Club annual Fire School was this new aluminized proximity clothing by Globe Manufacturing Company, Pittsfield, New Hampshire. These new suits are designed to reflect radiant heat.

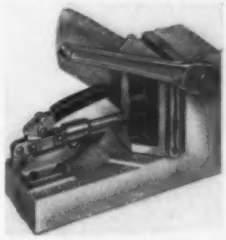
•

There's a new, lightweight (60 pounds) 115 volt AC, 1,500 watt electric generator now marketed under the name of Mite-E-Lite by *Hearth Industries, Inc.*, 304 South Brooklyn Avenue, Wellsville, New York. Write them for literature. . . . *American LaFrance*, Elmira, New York, has appointed Carl Brownfield as Director of Purchases, John F. Murphy as Director of Manufacturing and Arthur J. Beery as Assistant to the President.

Hugh C. Higley, formerly Vice President and Sales Manager of *Ansul International Corporation*, S.A., becomes General Manager of Fire Equipment Division, *Ansul Chemical Company*, Marinette, Wisconsin. . . . Get a free wallet-sized 1962 emergency first aid calendar by writing to *FD Products*, 90-N1 Tracey Place, Englewood, New Jersey. . . . Ronald K. Chedister is Chief Engineer of *Falcon Alarm Company, Inc.*, Summit, New Jersey, makers of Freon-powered signaling devices. . . . Municipal fire departments and industrial fire brigades concerned with protection in power plants and property containing electrical machinery will find a new 4-page engineering bulletin on Poweron nozzles useful. Write to Advertising Department, *American LaFrance*, Elmira, New York.

NEW "STRAIGHT EDGE"

HOSE CUTTER



You get a 90 degree cut on fire hose — safely — with the new B & P "straight edge" hose cutter.

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Convert your spare time into steady income selling most popular line of Belts and Buckles with Fireman's personal initials, first name or nickname with miniature replicas of actual fire equipment beautifully enameled, also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with FREE complete sales kit. Really nice part-time money producing items.

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Indiana Certified Fire Instructors' Ass'n.	Mar.	28
IAFC Conference	Sept.	16
Highlights	Nov.	25
IFCA of Asia	July	24
IRFAA:		
Officers	Jan.	16
Meeting	Oct.	29
North Cumberland Firemen's Association	Oct.	19
Tri-State Firemen's Associations	Nov.	32
Attack:		
In Europe, England and Australia	Sept.	68
Speeding with Supply Lines and Master Streams	Apr.	12
Baby Sitter Course	Apr.	34
Barge Fire, The Dalles, Oregon	Jan.	10
Boston Fire of 1872	Oct.	16
Bow and Arrow Life Gun	Aug.	26
Box Warning	Oct.	30
Breathing Apparatus:		
Hose Mask	July	9
Building Collapse, Philadelphia, Pa.	Nov.	40
Calcium Hypochlorite, Hazards of	Sept.	66
Card Game	Jan.	24
Cavitation in Fire Pumps	Jan.	8
Chlorine Gas	June	22
Churches, Guide for, Downey, Calif.	Feb.	32
Civil Defense	Nov.	14
Staff and Command School	Dec.	26
Collectors:		
Badges	Feb.	23
Insignia	Jan.	24
Shoulder Patches and Badges	Sept.	41
Concrete Dividers	Aug.	19
Comments on	Oct.	20
Displays:		
Dallas State Fair	Apr.	27
Window	Sept.	56
Dwelling Inspections	Oct.	8
Montclair, N. J.	Oct.	24
Edits:		
Aircraft collision, fire	Jan.	7
Civil Defense to the Pentagon	Aug.	7
Film, Fighting Tank Fires	Sept.	15
Fire Losses	Feb.	9
Fire Photographer, Philadelphia	July	7
Fire Prevention Contest Entry Forms	July	7
Firemen's Hands (Rescue of Kittens)	June	7
Flammable Liquids Fire, Toledo, Ohio	Aug.	7
Gasoline Service Station Fires	Feb.	9
Mailing Addresses	June	7
Manpower	Mar.	7
NFPA Annual Meeting	June	7
NFPA Calendar, 1962	Apr.	7
NFPA Convention	Feb.	9
Panic	Nov.	9
Practice Burnings	Apr.	7
Public Relations	Jan.	7
Rural Fire, Auburn, Maine	Oct.	7
Salaries	May	9
Spring Clean-Up Week	Feb.	9
Training	July	7
Working Hours, New York City	Oct.	7
Equipment:		
Aerial Ladders	Feb.	20
Exhibition in Germany	May	25
Exitways:		
Locked Doors	Sept.	25
Supermarkets	June	8
FCC Rules, Change in	Nov.	13
FDIC:		
Conference	Feb.	22
Highlights	Apr.	22
Film — Tank Fire Control	Sept.	26
Film Listing, Changes in	Apr.	28
Fire Causes	Apr.	20
Fire Departments:		
Arcadia, Calif.	Aug.	12
Belltown Fire Dept., Inc., Stamford, Conn., New Station	Jan.	26
Beloit, Wis.	May	22
Berkeley, Calif., Circular Fire Station	Nov.	39
Cape Canaveral	Dec.	14
Coos Bay, Ore.	Oct.	12
Gerry, N. Y., Rodeo	Jan.	14
Las Vegas, Nevada	Sept.	17
Los Angeles, Calif.	July	11
Los Angeles County, Calif.	Nov.	36
Mexico City, Mexico	Oct.	22
Philadelphia, Pa., Fire Prevention Competition	July	17
Portland, Ore.	Apr.	8
Redwood City, Calif.	Oct.	14
Roseville, Calif.	Dec.	16
San Diego, Calif., Station	Jan.	26
Sioux City, Iowa, Station	Apr.	27
Stockton, Calif., New Station	Sept.	52
Fire Prevention:		
Award	Aug.	13
Competition in Philadelphia	July	17
Demonstration, Bloomington, Ind.	Apr.	32
Disney's Dalmatians and Sparky	Apr.	29
Parade Floats	Nov.	10
Safety Program for Ky. Schools	Sept.	64
Training in Kindergarten	Nov.	40
Fire Protection in Industry	July	23
Fire Pumps, Cavitation in	Jan.	8
Fire Station Design	Sept.	32
Fires:		
Brooklyn and Staten Island, N. Y.	Jan.	7
Chicago, Ill.	May	14
Los Angeles, Calif.	Dec.	10
Lower Allen Township, Pa.	Feb.	23
Richmond, Va.	Sept.	36
The Dalles, Ore.	Jan.	10
Topeka, Kan.	May	12
Flammable Liquids and Gases in Manholes, Sewers	Apr.	14
Fog Streams, Advancing	Aug.	8
Forest Fire Loss	Aug.	19
Gasoline Devices, Coin-Operated	Nov.	35
Gasoline Service Stations	Feb.	16
Grain Fires, Truck for	Jan.	16
Hazardous Chemicals Data	Oct.	21
Highways, Limited Access	Feb.	36
Hose:		
Aerial Ladders, Advancing with	Sept.	19
Long Lines of Small Hose, Using	Oct.	11
Small Lines, Limitations of	Mar.	16
Supply Lines and Master Streams	Apr.	12
Three-Inch Hose	Feb.	21
Hose Couplings:		
Attachment	June	14
Reverse or Double	Feb.	36
Hose Laying Competition, Calif.	Sept.	60
Hydrant:		
Dry Hydrant	Jan.	17
Make the Most of Hydrants	Feb.	15
Hydraulics:		
Back Pressure	Sept.	50
Water Still Comes Out the Nozzle	Aug.	14
Ice Auger	Dec.	21
Invalid Marking Program	June	15
Ladder Rescues:		
Baltimore, Md.	July	12
Indianapolis, Ind.	Mar.	18
Kansas City, Mo.	July	12
Ladders:		
Advancing Lines With Aerial Ladders	Sept.	18
Aerial Ladders	Feb.	20
Lamp	Dec.	30
LP-Gas Leak in Railroad Tank Car	Nov.	38
Lumber Yard Fire	Dec.	16
Making a Good Job of It:		
Aerial Ladders, Advancing Lines With	Sept.	19
Aerial Ladders, Use of	Feb.	20
Small Hose, Using Long Lines of	Oct.	11
Small Lines, Limitation of	Mar.	16
Three-Inch Hose, Misuse of	Feb.	21
Water Still Comes Out the Nozzle	Aug.	14
Manpower:		
Fire Chiefs' Lament	Aug.	20
Fire Companies	Dec.	28
Ghost Fire Companies	Mar.	8
Ghost Firemen	Feb.	13
Legitimate Reasons for Absence	Oct.	18
Manual for Volunteers	June	17
Medical Check-Up	Nov.	34
Mexico, Chief Engineer Bond in	Oct.	22
Mutual Aid, Multnomah County, Ore.	July	21
NFPA:		
Annual Convention	May	10
Annual Meeting	June	7, 17
Serves Fire Departments	Sept.	18
Subcommittee on Protective Equipment for Fire Fighters	Nov.	35
NFPA Fire Prevention Contest:		
Award	May	29
Highlights of Entries	Mar.	14
1960 Winners	Feb.	10
Nozzle Tips, Standard Sizes	Sept.	45
Obits:		
Ames, Norton T.	Apr.	29
Driscoll, Leo C.	Apr.	29
Maxim, Leighton LeB.	Dec.	33
McCabe, Edward B.	Dec.	33
McIntire, Thomas S.	Dec.	33
Mullaney, Anthony J.	Jan.	22
Price, William M.	Mar.	26
Peg-Board for Tools	Apr.	28
Photographer:		
Lowey, Richard	Feb.	35
Public Relations:		
Newspaper Coverage	Jan.	19
	May	30
Publications:		
Day Care Centers	Sept.	45
Effective Streams	Aug.	24
1830 Book Sought	Aug.	19
Emergency Rescue Squad Manual	May	23
Fire Chief's Handbook	Nov.	26
Fire Department Operations in Protected Properties	Aug.	19
First Aid Practices	Feb.	30
Flammable Liquids and Gases	May	25
German Book on Water	Apr.	26
Heart Victims, Booklet for	Nov.	35
MCA Booklet	Apr.	28
Nozzle Pressures on the Fire Ground	Oct.	23
Occupancy Fire Records:		
Bowling Alleys	Dec.	33
Hospitals	Sept.	53
Operation School Burning No. 2	Nov.	33
Registry of Public Safety Radio Systems	Feb.	26
Resuscitation of the Unconscious Victim	Sept.	41
Standard of Municipal Fire Protection	Apr.	27
ULC Standard for Unlined Fire Hose	Sept.	58
Welding and Cutting in Garages	Nov.	37
Pump Makers for 75 Years	Mar.	19
Radiation Emergencies, For	Nov.	28
Regional Round-Up:		
Alabama, Florida, Mississippi	Dec.	18
Arizona, Nevada, New Mexico, Utah	Apr.	18
Arkansas, Louisiana, Texas	Nov.	17
California, Idaho, Oregon, Washington	Mar.	22
Colorado, Montana, Wyoming	May	18
Illinois, Oklahoma, Georgia	Sept.	30
Iowa, Missouri, North Dakota	Aug.	16
Iowa, Wisconsin	July	13
Kansas, Minnesota, Nebraska, North Dakota, South Dakota	June	10
Reorganization in Los Angeles	July	11
Rescue, Ladder		
Baltimore, Md.	July	8
Indianapolis, Ind.	Mar.	18
Kansas City, Mo.	July	8
Response of Apparatus, Wash., D. C.	Oct.	25
Retirement:		
Adams, Roy	Dec.	30
Lambert, W. M.	Oct.	30
Rocket Motor, Solid Propellant	Sept.	34
Rodeo, Gerry, N. Y.	Jan.	14
Rope Control Device	Sept.	54
Russia:		
"A Great Moscow and a Great Task"	May	17
"What We Expect of the All-Russian Volunteer Fire Association"	May	16
Safe Extension Indicator	May	24
Safety Goggles in Los Angeles	Aug.	24
School Fire Drill, Wayne County, Ohio	Feb.	34
Shopping Malls	Mar.	24
Sparky:		
Fire Department, Pilot, N. C.	Aug.	18
Pattern Poster	May	28
Steam Fire Engines	Feb.	25
Street Names, Similar	Sept.	58
Supermarket Exitways	June	8
Swimming Pool Fires	June	10
Taxes	Jan.	20
Tillerman's Job	Jan.	18
Toluidine Data Sheet	July	22
Training:		
Alaska	Oct.	24
Annual Georgia Arson School	June	22
Ansul Fire School	Apr.	28
Command School, Yakima, Wash.	June	22
Radiation Hazards	July	26
State and Provincial Survey	Dec.	22
West Allis, Wisconsin	Feb.	18
Training Aids	Nov.	21
Training Facilities:		
Tacoma, Wash.	Nov.	31
Underwriters' Laboratories of Canada	July	24
Volunteer Firemen's Manual	June	17
	July	15
Water Supply, Rural	Feb.	22

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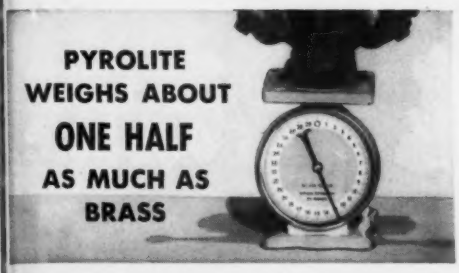

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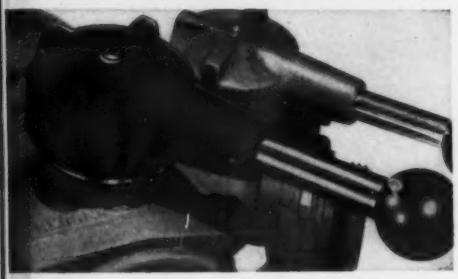

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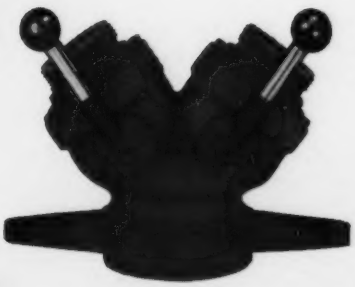

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